A Training Manual for Village Health Workers

With Best Compliments from:
DR K.A. KRISHNAMOORTHY
DIRECTOR,
VILLAGE HEALTH WORKER PROJECT,
NEW PAEDIATRIC BLOCK,
GOVT. ERSKINE HOSPITAL,
MADURAI-625020.

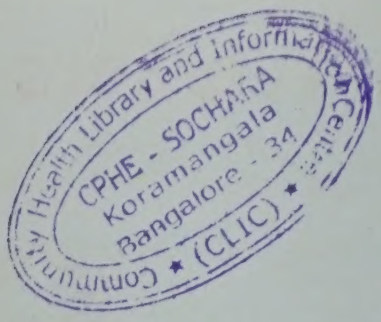
OXFAM
59 (1st Floor), Miller's Road,
BENSON TOWN
BANGALORE-560 046.

INSA / INDIA
RURAL HEALTH AND DEVELOPMENT
BANGALORE 560 046.

TM-110

The Village Health Worker Project
Government Erskine Hospital,
MADURAI-625020. (TamilNadu.)

16118



SOCHARA
Community Health
Library and Information Centre (CLIC)
Community Health Cell
~~85/2, 1st Main, Maruthi Nagar~~,
~~Madiwala~~, Bengaluru - 560 ~~068~~ 34
Tel : 080 - 25531518
email : clic@sochara.org / chc@sochara.org
www.sochara.org

OXFAM
WN
BANGALORE-560 046.

INTRODUCTION

This manual has been written primarily as a guide for future trainers of Village Health Workers in the Madurai Project. It is also hoped that, the Block Development and Primary Health Centre Staff may find it a useful orientation into the nature of the Village Health Workers, work within their communities. It represents a gathering of concepts of nutrition, child and community health of the Project Staff and the staff of the Nutrition Rehabilitation Centre and Department of Paediatrics, Government Erskine Hospital, as well as many practical suggestions which the Village Health Workers themselves contributed during the course of their training.

Other sources for writing the manual include Narangwal Training Manual for Auxillary Nurse Midwives and Maurice King's Nutrition in Developing Countries, from which a number of diagrams and teaching concepts have been adapted.

The chapters follow the sequence of the initial two week training programme for the VHWs. As such it is only an introduction to community health. Its emphasis is on child nutrition and the prevention and treatment of the common illnesses of young children. The many other aspects of community health, such as antenatal care, treatment of loprosy methods of family planning and others, are taught to the VHWs in subsequent two-day sessions each month which continue on paermanent basis for them. It is planned to include these topics in a later section, part II.

Community Health Library and Information Centre (CLIC) ★ CPHE - SOCHARA Koramangala Bangalore - 34

11618

Acc. No. 232
Class Code : 5.02 VHW
DOCUMENTATION CENTRE
INSA
INTERNATIONAL SERVICES ASSOCIATION
5/1, BENSON CROSS ROAD,
BENSON TOWN, BANGALORE-560 046.
☎ : 3536633, 3536299.
FAX : 91-80-3536633.

Many of the Village Health Workers in the M
either the local village midwives (indigenous dais)
'health advisers' in their communities. As such their
health problems is often quite astute. This experience
interest in health continually leads to worthwhile exch
''trainers'' and ''trainees'' - so that at times these role
The training staff has learned much from the VHWs
customs and beliefs and how to simplify the more sc
health for village teaching. In fact, we find it very use
VHW's to be conducting much of the training for the subsequent groups of village women.

It is hoped than that the ideas expressed in the manual will be used as points for dialogue and discussion (and so improved upon!) rather than simply as lessons to be taught in the more traditional didactic way.

''In Partnership for Health'' the Madurai Project's motto, reflects the mutual sharing of experience, trust and respect between the village-level health workers and the members of the training and supervising terms . ... an attitude which seems an essential ingredient for the success of a community health programme.

The project staff openly welcome the reader to send any questions or suggestions for improving the manual to

The Project Officer,
Village Health Worker Programme,
New Paediatrics Block,
Govt, Erskine Hospital,
Madurai-625020. (Tamil Nadu)

INDEX

CHAPTER NO.		PAGE
1	INTRODUCTION What is a Village Health Worker?	1
2	CHILD HEALTH CARE The Narmal Child.	12
3	THE MALNOURISHED CHILD	24
4	NUTRITION	42
5	THE "BLOCKS" TO GOOD NUTRITION FOR THE YOUNG CHILD	53
6	HYGIENE	60
7	THE HUMAN BODY	68
8	THE SICK CHILD A. Diarrhoea B. Pneumonia C. Other infections	74 75 86 88
9	TUBERCULOSIS	100
	A NOTE ON BOTTLE FEEDING	108

A TRAINING MANNUAL
for
VILLAGE HEALTH WORKERS

A. INTRODUCTION

What is a Village Health Worker?

A VHW is a village woman who gives basic health care and education to all the people of her village. She has been taught by Doctors and Nurses how to TREAT the common simple illnesses which occur in her village and how to PREVENT sickness, especially the childhood illnesses. She works as part of health team, and is always supervised by a doctor, nurses and other staff.

The VHW must be dedicated to her work because to be a good health worker, she must work many hours every day and visit ALL the home of her village. She also must be trusted by all the villagers especially the mothers, so that they will accept what she teaches and advises. Because her work is very important, she has much respect in the village and so is given an honorarium as a sign of appreciation.

Only, dedicated, trusted, energetic women will be good VHW's

Why does a village need a VHW !

In every village many people, especially young children, suffer from common diseases and also malnutrition. These conditions often cause death or much handicaps. Much of these deaths and illnesses and malnutrition can be prevented if simple medicines and nutrition advise is given EARLY.

There are very many villages in India and not enough doctors for every village. But if a village woman is given simple training she can treat or prevent much of the illnesses and malnutrition. Therefore she is very important for the health of the villagers.

She is especially important because she can teach health care and good nutrition BETTER than even a doctor or nurse because SHE UNDERSTANDS THE PEOPLE IN HER VILLAGE better and is trusted by them.

What are these common health problems ?

Let us stop to think what the common health problems are in our villages. and who it is who is not healthy.

First we may think of the many children especially young children who have frequent bouts of DIARRHOEA and also "COLDS". SKIN INFECTIONS and EAR INFECTIONS are very common too and these also occur in young children most frequently.

What other infections do children get ?.....

We also can recall that there are many children who are not healthy because they have such POOR NUTRITION - they are weak, often unhappy, skinny and seem to get many infections; in fact many of these poorly nourished children actually die.

As well as the old people in whom death is natural who else in your village dies? If you are a midwife you easily know that many new born babies die, the commonest time being within the 1st month after birth, especially the 1st week. Also some women die from complications of child birth.

You can also think of many people who are BLIND or HANDICAPED in your village - They are of all ages. But if your stop to think when they BECAME blind or crippled you will realize that most blindness and crippling first develops in childhood. Some kinds of blindness, which comes gradually occurs however in the older people of the village.

The other illnesses you can perhaps think of are those of LEPROSY and T. B. and these infections tend to be noticed more in adults, though in actual fact these people have first developed these infections when they were young children also.

Let us look at all of this again in a more simple way: that is, summarize what we know about illness in the village:

(1) Much of the illness, and malnutrition in the village occurs in youug children often below the age of 4 or 5 years. These common infections are diarrhoea, chest infections skin and ear infections, measles, polio etc.

(2) Besides old people dying; many of the deaths occur in younger children and mothers in childbirth. Blindness and "limps" usually begin in childhood.

(3) T. B. and Leprosy are common and are most obvious in adults.

Can you think of any other health problems ?

Much of the illness, poor nutrition and deaths in villages occur in the young children

What can the VHW do to improve her villages health?

There are 6 very important things that a VHW can do to improve her village's health.

The FIRST is she can TEACH about good health and good nutrition and show the villagers what they can do to have better health for themselves and for their children.

Many beliefs and child care practices are already very wise and good. such as breast feeding children until 1½ or 2 years age or longer. But there are also some health and feeding practices that have a bad effect on the health of children. The VHW must try to change these unhealthy practices by teaching the mothers and families.

For one of the main causes of malnutrition in children is that mothers do not know that their children need more nourishment than just breast milk

after 6 months of age. The VHW can teach her WHY the infant needs extra food and also show her **HOW** she can prepare this extra food in a safe way for her baby.

Teaching involves more than talking as you can see; it also include demonstrating and having the mothers do these new practices for themselves.

Teaching is a very important part of the VHW's work

2. The SECOND important duty of the VHW is NUTRITION AND HEALTH SURVEILLANCE; that is, she carefully and regularly watches for early signs of diseases and poor nutrition, especially in the young children of the village where she knows they are most likely to occur.

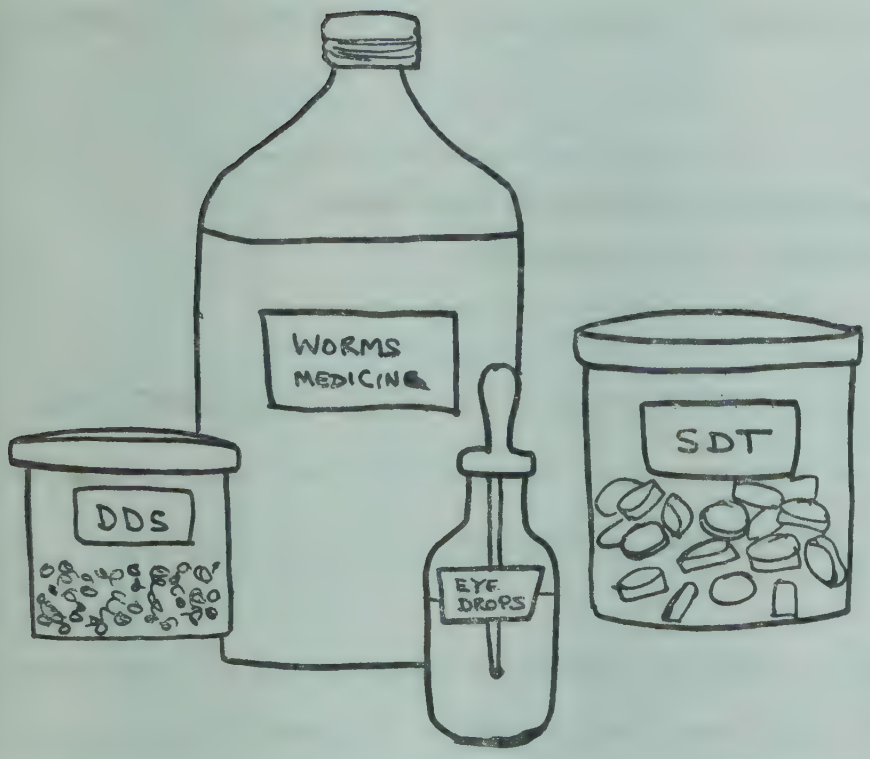
She knows that if an infection or poor nutrition can be found in its early stages it can be treated easily - either by medicines or by advising the mother how she could better feed her child.

For example, if she regularly weighs each young child in the village she will know which children are growing well and gaining weight as they should, and which children are not gaining enough weight and therefore are in danger of malnutrition. She can then give teaching to these mothers about what to feed the child so that they begin to grow well once again.

If she regularly weighs the children she will recognise the early stages of malnutrition which are easier to correct. This is called NUTRITION SURVEILLANCE. Much more will be said later about how to do this.

The goal for the VHW is to KEEP her village healthy. and she does this by health and nutrition surveillance

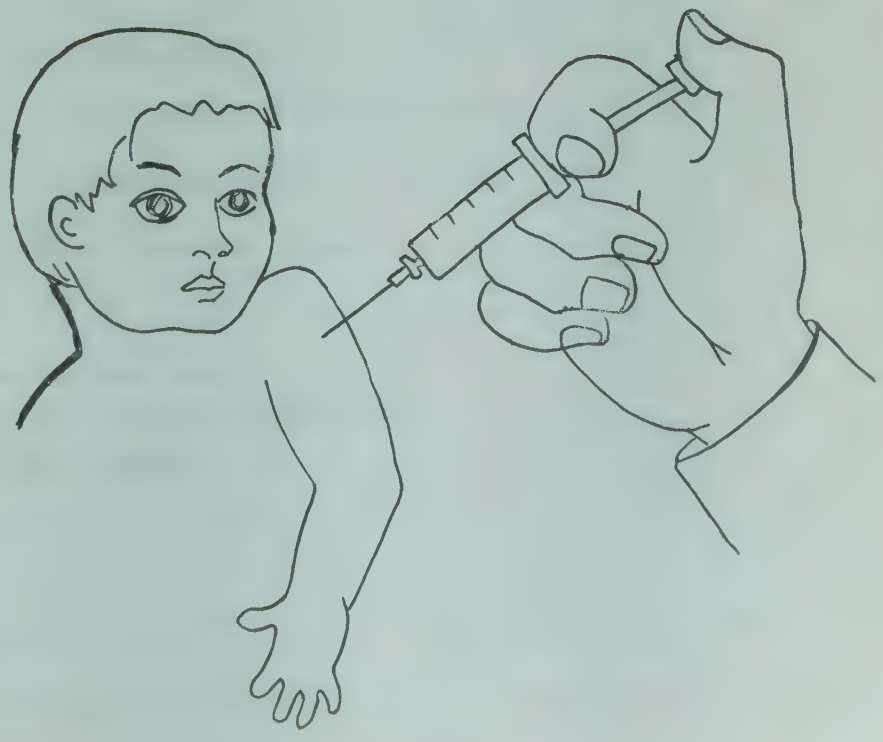
The THIRD important work the VHW does is giving TREATMENT for illness infections or accidents, and also sending serious ill people to a doctor or hospital when necessary (that is "referral")



Many of the common illnesses are not serious or a danger to life and health when they first begin. A well-trained VHW can recognise disease when they begin and treat them with medicines and good feeding within the village.She is also taught how to recognise when an illness becomes severe and must be sent immediately to a doctor or hospital.

A VHW gives TREATMENT for simple illnesses, and REFERS seriously ill people to hospital

The FOURTH important work for the VHW is encouraging the mothers to have their children immunized by attending the regular immunization camps in the village. This is a very important role for her to prevent many serious childhood illnesses which can often lead to death or crippling.



Do you know what childhood illnesses can be prevented by immunization ?.....

A VHW convinces all parents to have their children fully immunized

The FIFTH important health is MATERNAL AND YOUNG INFANT CARE; that is improving the health of the expectant mothers and new born infants of the villages, and seeing that the delivery of children is safe as possible.

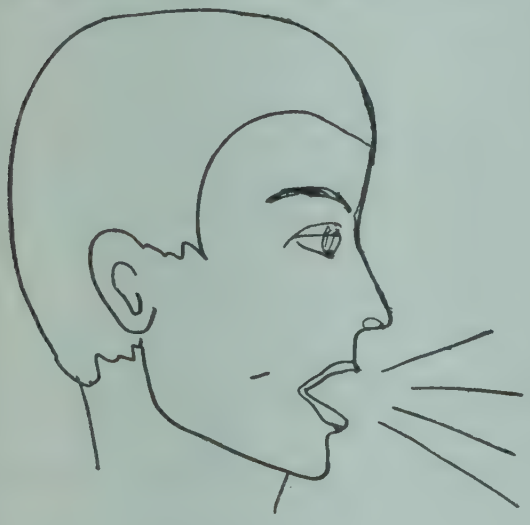
The number of new born babies dying in the village tends to be very high. Many of these babies not have to die if given special care by the VHW. For example tetanus of the new born child can be easily be prevented if the mother is immunized before the baby is born.

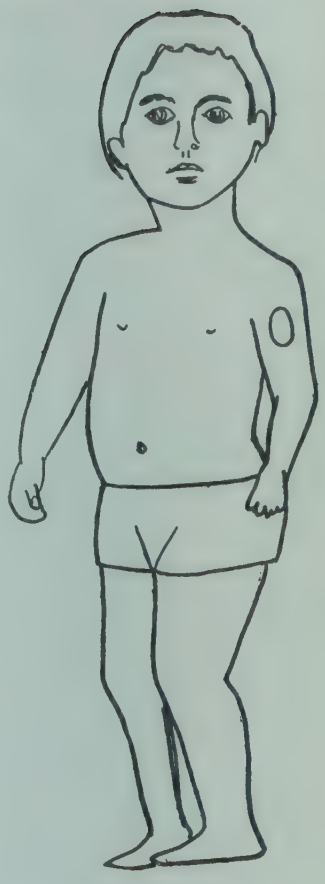
In some villages the woman selected by the villagers to be their VHW is also the village midwife. But in others she is not. She can however teach the local midwifes how to give safer delivery care and help to supervise her work.

The VHW ensures that all babies are born healhy and safely

The SIXTH important duty of the VHW will be to help to provide continuous treatment for all the villagers suffering from T. B. or LEPROSY.

After the supervising doctor finds all villagers with either TB or leprosy, the VHW supplies the medicines regularly to the villagers and checks to make sure they take the medicine for many months that treatment is necessary. In doing this she not only helps to cure these villagers but also protects the children of their families and others from getting these diseases.





The VHW helps to treat all people with TB & Leprosy in her village

In any village in India these 6 duties of a VHW will be important.

1) Health & Nutrition education.

2) Health surveillance.

3) Treatment of common illness.

4) Immunization.

5) Maternity care.

6) Treatment of chronic diseases such as Leprosy.

Some villages may have other health needs as well as these. If she is a good VHW she will recognize these other health needs and tell her supervising team about them so that together with the villagers they can find solution.

For example, the villagers may tell her that the village well has water that is not clean. She would know that unclean drinking water is very bad for health' and would tell the supervising doctor. Together with the villagers, panchayat council and even block leaders. They could decide on a solution of 'having clean water for the village.

It is important for the VHW to tell the supervising team what the community thinks its health needs are?

How is the VHW going to learn and do all this work ?

As you can see there is much important Work for the VHW to do. You will begin to learn how during this initiai training period of 2 weeks. After this you will continue to learn more by coming back for a 3 more days of training

every month. You will also learn by experience in your village and by the advice the supervising team given when they came to visit each fortnight (Like fhe Goddess Saraswathi who is always learning a VHW much always be learning too)

A VHW's training and learning never stops

The VHW does not work alone in her village. She is the village level member of a health TEAM for the block. She is trained to do many things well such as teaching and treating mild infections. But because her training is very short compared to that of a doctor or nurse, she is not capable of treating every sick people well. She must send these people to medical people who know more than she does. She must never try to do more than she has been trained to do; otherwise the people of her village will suffer, and no longer have trust for her.

Just as in the game of football. If one player of the team keeps the ball for himself all the time and, not pass it to his team mates at right time, the team will never score goals and win the game.

A VHW is one member of health team

CHAPTER II

CHILD HEALTH CARE

The Normal Child.

Why is child care so important?

Almost half of all the people in villages are children. As we talked about earlier very much of the illness and malnutrition occurs in the young children of your village. In fact, the younger a child is, the more he is in danger of dying. The largest number of children die in the first seven days of life. You probably know this already from experience in your village.

Many of these serious illnesses and deaths can be prevented. And all malnutrition can be prevented.

Because keeping children healthy is so important and because much of the illness in your village occurs in them, the VHW must spend most of her time looking after this special group of the village community, the children under 5 years old.

Just like paddy plants needs extra attention, more water and fertilizers when they are young, tender plants, so it is with people; they also need much extra care when they are young and tender !

Keeping the young children under 5 years healthy is the most important work for the VHW

What is a Healthy Child?

a) General appearance:

To understand well in what ways a child may become unhealthy and poorly nourished, we must first know exactly what a healthy child; that is, the "normal" child.

It is easy to recognise a healthy child when you see him. You know within a second, Ah yes this is a healthy baby !

But let us look very closely at the reasons how you know a child is healthy.

Perhaps the first thing you notice that he is plump not skinny. He has gained much weight since his birth.

He is active and alert.

He is a happy baby and playful.

He has no infections, his skin is clear; his ears do not have water coming out. His eyes are clear and bright. He does not have cough or have diarrhoea. He has a good appetite.

DEMONSTRATION of a healthy child, "RAJA"

b) Birth Weight

This child is now_____years old. We know he is healthy now, and probably he was just as healthy when he was born. How would we know if this newborn child was healthy and normal?

The normal child at birth should weight at least 3 kg. or more. If a baby has grown well for the 10 months inside its mother before birth, and if the

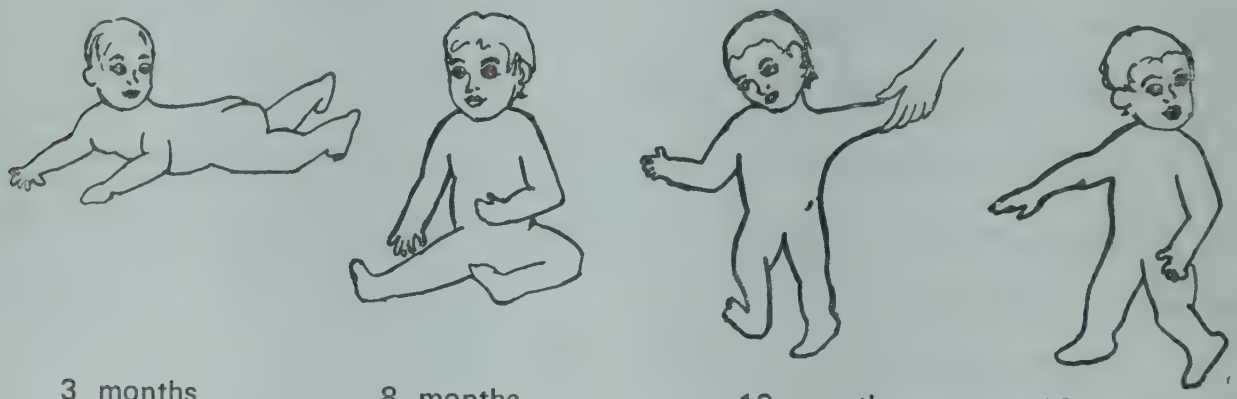
mother has taken much nourishing food during her pregnancy, her newborn baby should weigh this much. We will talk more about the normal newborn child at a later teaching session.

A healthy newborn baby should weight 3 kg or more

c) Milestones:

When a baby is first born, he can not do much except feed and sleep. As the baby grows however he gradually learns how to do other things. For example by the time the baby is 6 to 8 months old he usually has learned to sit up by himself.

At 12 months he can usually stand if someone gives him some support; and by the 14 or 15 month most babies have begun to walk.



3 months 8 months 13 months 18 months

No two babies are alike; that is, they can differ much in the time when they learn different and still be very normal.

However children who are poorly nourished often learn to do many or all of these things very late. Just as they don't grow well, they often do not learn things well.

There are sometimes other reasons for a child not learning well _____ we say "developing".

If you notice that a child is like this, that is, slow to learn or ''develop'' you should check for malnutrition, but also refer the child to the doctor when he visits.

A young child who is very slow to learn things may have malnutrition

How can every mother have a healthy child?

We have seen a healthy child, ''Raja'' What are the good things that Raja's mother has done to keep her child healthy like this? Can we learn from what she has done, and so teach these things to other mothers in our village?

Most of you will have children of your own and will know many wise things about how to care for children. Let us make a list of the things a mother and you yourself do to keep children healthy and well nourished.

a) NUTRITION:

1) Antenatal nutrition:

The first wise thing Raja's mother did was to make sure that Raja was healthy and strong when he was born, so that he would start life as a healthy baby. She knew that if her own nutrition was good, her baby growing inside her for the long 10 months would grow well. So she ate nutritions food, such as vegetables greens, dhals and fruits, and ate as much as she could.

THE EXPECTANT mother needs to eat nutritious food in order that her baby is born healthy and strong

2) Breastmilk:

She also knew that breast milk was the best food for her new born baby; that it was very nutritious and very clean and was all that the baby needed to grow well for the first 5 months of his life.

BREASTMILK is the best food for young babies

3) Colostrum:

She also started to breastfeed him immediately after his birth because she knew that the colostrum which her breasts secreted the first 2 or 3 days after delivery was especially nutritious for her baby. Some mothers in the villagers think that this milk is not good for the baby because it looks like water.

Actually just the opposite is true. This milk is special because it contains an extra amount of a food called vitamin A which protects the baby's eyes from going blind. It also contains a substance called "antibodies" which the baby needs to be protected against infections.

You probably know that infants get infections very easily. Nature has provided that a baby should have extra protection immediately after it is born by giving the mother

this special milk. As well this first milk acts as e gentle laxative to help the baby pass ito first motion.

So it is important that the VHW explain this to the mothers so that they will not throw away this very precious milk.

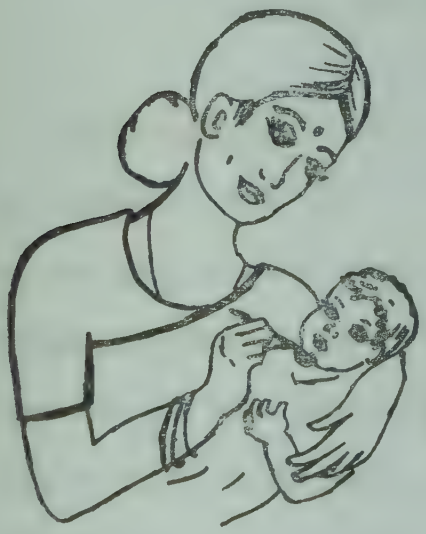
What other beliefs do the mothers in your village about colostrum?

The Breast milk a mother has for the first 1 to 2 days after delivery is the most nutritious food for her baby

What other reasons do you think the mothers might have for not breast feeding their babies the first few days after birth?

4) Early regular supplementation:

One of the most important things Raja's mother did to keep her growing child well nourished was to start giving extra food along with her breastmilk when he was 6 months old. She know that her breastmilk was no longer enough food for the baby because he now weighed twice as much as he did when he was born, and so he needed twice as much food.



Just as a father needs to eat more food than his young son because he is bigger, so a baby at 6 months of age needs more food than a newborn baby who only weighs half its size.

At 6 months of age breastmilk alone is not enough to keep a baby growing well

What foods are good for an infant?

5) "Mixed" diet:

When Raja was 5 months old his mother started giving him a ragi or rice conjee with a bit of jaggery added, knowing that he would take this more easily than other foods But soon she was preparing porridges made from finely mashed and strained vegetables and dhals and even greens. Bananas and the juice of other fruits were given as well.

She knew that gradually starting him on a mixed diet as well as breast milk would keep him wellnourished. By the time he was one year old, he was taking any food that his parents would eat, though his food was prepared specially — without many spices and mashed well.

Infant above 5 months of age should gradually be started on a mixed diet of semi solid food initially & solids gradually

We will discuss more about preparing special infants food another day.

6) Frequent feeding:

She also knew that because young children stomachs are small they cannot eat very much at one time. If they are to eat all the food that they need to grow well, they must be fed many times during the day - at least 4 or 5 times a day.

A young child must be fed at least 5 times each day

7. Preparing weaning foods in a very clean way:

Most mothers know that when extra food is given to an infant they often get diarrhoea which sometimes is very severe.

This diarrhoea can be prevented if the food is prepared in a very clean way. Raja's mother was very careful to wash her hands and all the cooking vessels and spoons very well before preparing his food. In this way she prevented him from having diarrhoea.

Infant diarrhea is not caused by the weanig foods themselves but rather by them not being prepared in a hygienic way.

The extra food given to young children must be prepared in a very clean way

These were some of the things that Raja's mother did to keep him growing well. Let us summarize them.

1. First she ate much nutritious food while the baby was growing inside her, so that he was strong and healthy when he was born.
2. She breastfed her baby until the end of his 2nd year
3. She began breastfeeding several hours after his birth so that he would take the special milk - colostrum

4. She started to give him extra food, specially prepared for him, when he was 5 months old.
5. She fed him 4 to 5 times each day instead of only twice as for adults.
6. She prepared all his food in a very clean way to prevent him from getting diarrhoea.

b) Preventing serious illnesses:

We have seen a young child in good nutrition and discussed the best ways of feeding a young child so that he grows well.

There are other important things a mother can do to keep her child healthy. There are many infections that a child can have, and many can be very serious and even lead to death. Raja's mother wanted to prevent her child from as many of these diseases as possible. She knew that there were "immunisations" that could be given to Raja that would protect him from many of the worst childhood infections and so she took him to have immunisations to prevent :

Small pox

T. B.

Whooping cough

Diptheria

Tetanus

Polio

She remembers many years ago when smallpox was very common and many children died or became blind from smallpox. Now that every baby has smallpox vaccination, no children in the entire country get small pox anymore. This is because they all have had vaccination.

The very same thing could happen with the other diseases mentioned. If all mothers had all their children immunized, they could never get these diseases.

Some mothers don't like the immunization because it sometimes give the child a small fever. But they must be taught that it is better for their child to have a little fever which will not harm them than to have than the real disease which might kill them.

When the VHW goes back to her village she must teach the mothers the importance of having their children protected by immunization.

The supervising team will regularly come for special immunising visits to the village. The VHW can help to prepare all the mothers to bring their children on these special days.

More will be said about these immunization visits later.

Immunization protects children against many bad diseases

Some infections can not be prevented by immunization such as ear infections or diarrhoea. But if they are treated early they often do not become serious. Raja's mother took him to the village health worker or PHC doctor or nurse immediately when he had an infection so that the infection would not become worse. In this way she prevented him from many serious infections.

EARLY treatment of infections is important to keep a child healty

How is infection related to Nutrition?

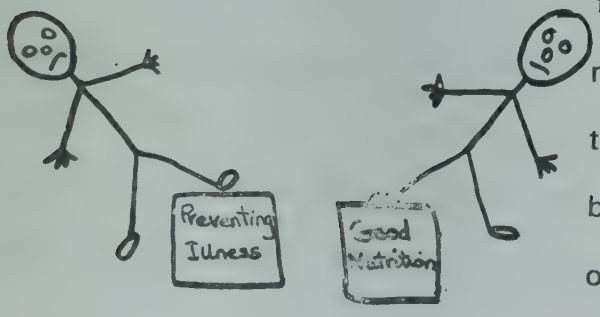
We have talked about two important ways a mother can keep her child healthy. First we mentioned providing good nutrition for the child and then we talked of preventing

illness and serious infections. (by immunisation and early treatment of infections)

It is important to understand how malnutrition and infections are related.

Perhaps it is easier to understand by comparing good nutritious food and prevention of infection as the two foundation blocks supporting a statue. Together they carry the statue well but if either one of the blocks is removed, the statue can not stand; it falls and is broken.

Just like the statue, if a child is not protected from serious infections (without immunisation and early treatment of infections) he will also "fall", and perhaps die, inspite of having nutritious food.



And in the same way, if a child is not fed nutritious food, immunisation alone cannot make him healthy. In fact, poor nutrition makes the child,very likely to get many infections, and because his body is weak the infections he gets often become very severe. This is why so many poorly nourished children die.

You have probably noticed this in your own village; children who have poor nutrition usually have more frequent and more serious infections.

Let us take a specific example. Measles is a common infection in children. All children develop measles but in the well nourished child the infection is quite mild, and he becomes well again in a few days. But if the child is poorly nourised is skinny or weak, measles becomes very severe, lasting many weeks and often brings severe diarrhoea which

can lead to death and also blindness. There is no medicine which can protect the malnourished child from severe measles - except nutritious food !

We can see that poor nutrition causes simple infections to become severe. But the opposite is also true. If a healthy well nourished child has frequent infections - such as diarrhoea, he will soon stop growing and become malnourished and weak.

All of this is why teaching the mothers about nutrition is just as important for the health of the children, as is giving medicines to them when they are sick.

Good Nutritious food and prevention of serious illnesses are both necessary together for a child to be healthy

CHAPTER III

THE MALNOURISHED CHILD

We have seen a normal healthy child and talked about what mothers can do, and should be taught to keep their children healthy like this.

Let us now look closely at the poorly nourished child, so that you can learn to identify these children easily when you see them in your village and so will be able to help their mothers feed them and care for them better.

Then, we will find out the reasons why these children have become malnourished, and talk about what advice should be given to these children's mothers so that they may once again become healthy.

These children who are at the Nutrition Rehabilitation Centre are very severely malnourished as you can see. Many are in great danger of going blind or dying simply from malnutrition and so that is why they have been brought to the nutrition centre. They need intensive immediate nutrition care and their mothers need much good nutrition teaching.

It is good to learn what children in most severe malnutrition look like. There will probably be two or three children in your village in a similar state. But it is very important to remember that there are very many more children who suffer from malnutrition not quite so severe and therefore less obvious to see. We will talk later about how we can identify these other children whose malnutrition is not quite so severe.

What is "Marasmus"?

Severe malnutrition in young children — appears in two different ways. Teh first way is simply as a very skinny child who seems to be only 'skin and bones' Younger children with severe malnutrition especially infants tend to look like this. It is the commonest form of severe malnutriton and you have probably seen many children in your village like this This type of malnutrition is called MARASMUS.

DEMONSTRATION:

"Marasmus" is really only another word for starvation or not having enough food of any kind to eat. Children with marasmus are always underweight and often only weigh half (of less) as much as they should for their age. Look how very thin this child is; his arms and legs are like sticks and you can easily see his ribs. His muscles are thin and the upper part of his arm is very small indeed. His face is thin and looks like the face of an old man.

What are the common CAUSES of marasmus?

A child can get marasmus at any age but the commonest age is during his first or second year. The commonest cause of marasmus in the first year of life is a mother not being able to breastfeed her child. (Instead she often only feeds very diluted (watery) milk or a watery congee, which contain very little nourishment.

If an infant is not breast fed he is likely to become severely malnourished and die

The commonest cause of marasmus in the 2nd year is that the mother does not give enough or any extra food other than her breastmilk after the child reaches 6 months of age. Some mothers are still feeding their child breastmilk alone until 12 months, 18 months or even 2 years!. The child becomes gradually more and more malnourished after 6 months until in his 2nd year he is very skinny indeed.

Children get marasmus because they are fed too little food of any kind

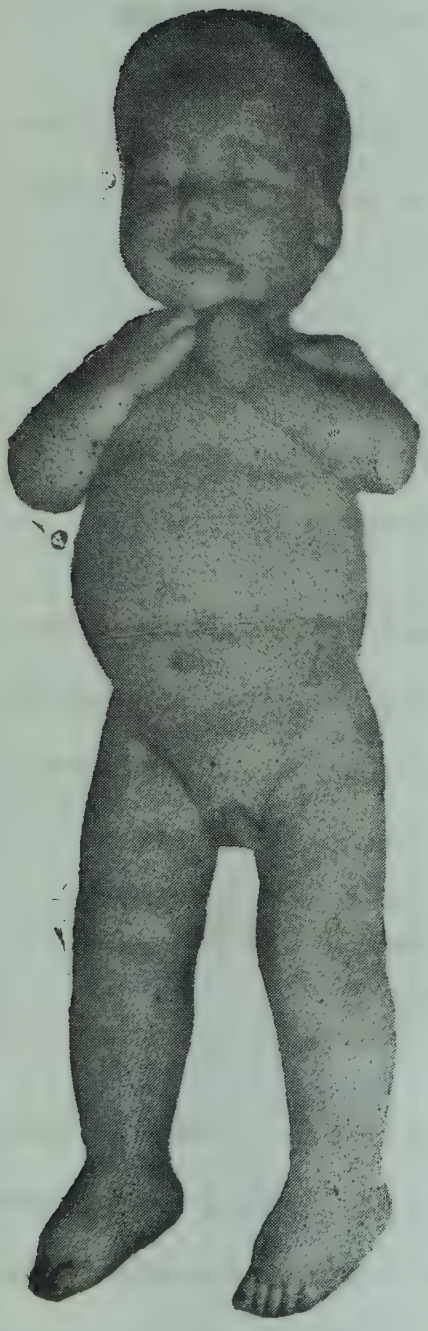
Another reason a child may become marasmic is from having many infections, especially diarrhoea or T. B. Serious or long-lasting infections contributes to make a child marasmic but the most important cause is too little food being given to the child.

Let us find out why these marasmic children here at the nutrition centre become malnourished.

What is kwashiorkor?

There is a second type of severe malnutrition in children called Kwashiorkor. Their malnutrition is more difficult to recognise because they do not look as skinny as the marasmic child. This is because their legs and face become filled with water, making them swell which hides their skinnyness.

Let us look at some children with Kwashiorkor. You can see the swelling of his legs, feet and sometimes his hands too. If you press for a few seconds on the leg or foot of



Kwashiorkor

a child with kwashiorkor your finger may leave a hole or dent behind. Such a child may look fat because of the abnormal water but underneath he is thin; his muscles are thin and weak. His stomach may also look big and fat but this is because the muscles of his stomach are weak and loose. But if you look at his shoulders and his upper arms you can see that they are thin.

The skin of a child with kwashiorkor may become thin and weak too. and may start coming off like old paint from a door. His hair is often pale and thin and comes out easily. He is usually very sad and sits still in his mother's arms and does not want to run about and play.

DEMONSTRATION:

Many children with Kwashiokor are not hungry and some may suddenly begin to refuse to eat anything. When this happens the child is very sick and probably will die in a few days, unless he can be coaxed to eat -- or given special feeding in a hospital.

A child with kwashiorkor is severely ill and can die very quickly especially if he refuses to eat

In India kwashiorkor usually occurs in children who are already severely malnourished - that is, marasmic. And commonly occurs in children above one year of age,

The swelling of kwashiorkor often develops during or immediately after an illness. Many children develop kwashiorkor after having measles, or whooping cough,or severe diarrhoea.

It is important to understand that the infection did not cause the kwashiorkor by itself. The child was in very poor nutrition before this illness. The infection only made his nutrition a little worse - but enough to make him develop kwashiorkor.

Kwashiorkor is caused by a lack of all foods but especially protein foods. Protein is needed for growth and gives strength to the body. It is found in pulses, groundnuts, bengalgram, some vegetables, and animal foods. Children who have kwashiorkor probably were not being fed any of these protein foods just mentioned - or very little of these.

The main cause of kwashiorkor is lack of many foods but especially those containing protein.

Children with kwashiorkor need very special care. They must be coaxed to take nutritious food 6 or 7 times a day. This can be very difficult because these children are often so sick and miserable that they do not want to take food. If inspite of coaxing by his mother a child with kwashiorkor refuses to take food he must be sent to hospital immediately.

What do the mothers in your village think is the cause of kwashiorkor?

Let us summarize what we have learned about the two kinds of malnutrition, marasmus and kwashiorkor.

1. Marasmus means a very skinny child. In a child under one year of age it usually is caused by his mother having been unable to breastfeed him for some reason; in a slightly older child, not being fed enough of all kinds of food.

2. Kwashiorkor is usually seen in children above one year of age; it is caused by inadequate amounts of food but especially of protein foods like pulses, groundnuts and some vegetables.

3. Many children are both very skinny AND have kwashiorkor.

4. Infection does not cause marasmus or kwashiorkor. It only makes it worse.

5. Children with kwashiorkor severe marasmus are very likely to die if good nutrition and care is not given very soon. All such children should be seen by the doctor immediately.

Let us look at all the children in the nutrition centre, to practice deciding what kind of malnutrition they have. Ask the mothers what they have been feeding their child before they came to the centre. (Tomorrow we will talk more about nutrition and what foods are important for children if they are to grow well)

The Malnutrition "Iceberg"

There are many children who are in "borderline" malnutrition, and they are likely to bacome a case of severe malnutrition.

We have now seen what severe malnutrition looks like. But there are many more children who suffer from malnutrition not quite so severe and less obvious to see.

For very one child in a village with severe malnutrition there are probably 10 other children with malnutrition but not quite so severe.

We can compare malnutrition in a village to a water buffalo sitting in a pand. As he sits in the water only the top part of his head shows above the water; the rest of

the buffalo's baby, in fact most of it, is under water. But we know it is there inspite of it being more difficult to see.

So it is with malnutrition; the children with kwashiorkor and severe marasmus are easy to identify; most of the moderately malnourished children are difficult to recognise as being malnourished - they are "hidden" But we know that they are there, just like we know that the rest of the water buffalo's body is under the water.

The underweight "child":

We call these children who are malnourished "underweight" We can compare the way children grow to the growing of rice in the field. If the young rice plant gets good nourishment from fertile land it will grow to be large and strong. But if the young saplings are planted in sand or poor soil and do not get good nourishment they will not grow well. They will be weak and small plants.

We want all rice plants to grow as well as possible. In the same way we want our children to be as big and strong as possible.

But MANY children do not grow to be as strong and healthy as they should - in fact over half the children in every village are smaller than they should be because they have not been given enough nutritious food. -- just like some rice plants are too small.

We cannot tell if a child is underweight just by looking at him. An underweight

child often looks much like a healthy child who is some months younger. It is only when we see him standing beside a healthy well - fed child of his own age that we see how small he really is !

How can we find out if a child is undernourished?

Just as we can measure the size of a rice plant, so we can measure the size of a child. The best and easiest way to do this is by WEIGHING him.

We know that all children should grow in a similar way if they are fed well. A healthy newborn baby should weigh at least 3 kg. At 5 or 6 months of age he should twice this much, that is 6 kg.; and at 1 year 9 kg, - or 3 times his birth weight at 2 years he should now weigh 11 kg. and so on.

How can we use this knowledge?

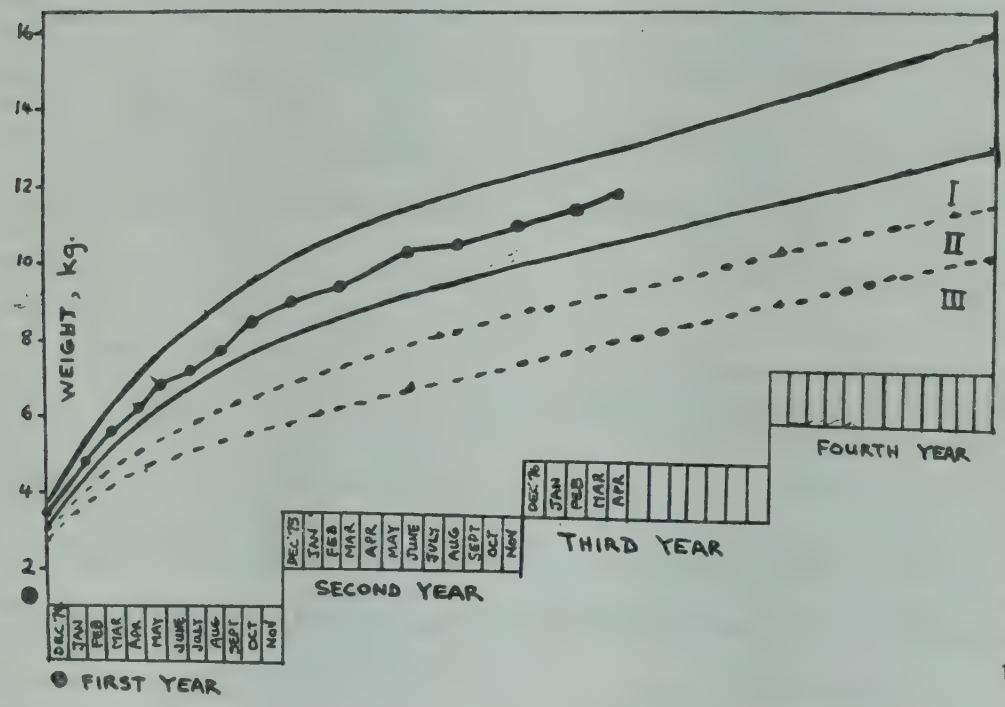
If we want to know whether a child of two years is underweight we find out what he weighs and compare this to the weight of a normal healthy two year old child. If for example he only weighs 9 kg. then we know that he is 2 kg. underweight; he SHOULD weigh 11 kg. Or if he only weighs 6 kg. at age two years he is very underweight indeed he only weighs half as much as he should for his age. If the VHW can find all the these children who are underweight she can prevent them from becoming more malnourished and dying by giving good nutrition and feeding advice to their mothers. Instead they can improve to normal health and nutrition.

This is the most important work that a VHW can do - to identify all the malnourished children in her village and help them to become well - nourished and strong through teaching their mothers

Health Library and Information
CFHE - SOCHARA
Koramangala
Bangalore - 34
(CLIC)

The "Road-to-Health" Card

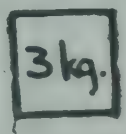
It is difficult to remember all these numbers of what a child should weigh at a certain age. Instead an easy way to see if a child is well nourished is by using a chart called a "Road-to-Health" Card. Though it looks very difficult to understand it actually is quite simple. It is a very useful card because it helps you and the other health staff to keep children healthy.



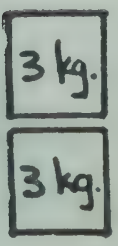
On this card you can see a line that curves gradually upwards from one side to the other. (These are actually several such lines but the top two lines reprerent the "Road to Health").

If a healthy child was weighed each month from birth until he was six years old this line shows how his weight would increase. The older he becomes, the more he grows and the more his weight increases. The more he weighs the higher the line becomes. We can show exactly how this line was drawn.

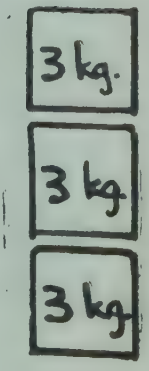
We already know that a newborn baby should weigh 3 kg. Let us represent this weight of 3 kgs. by a single block.



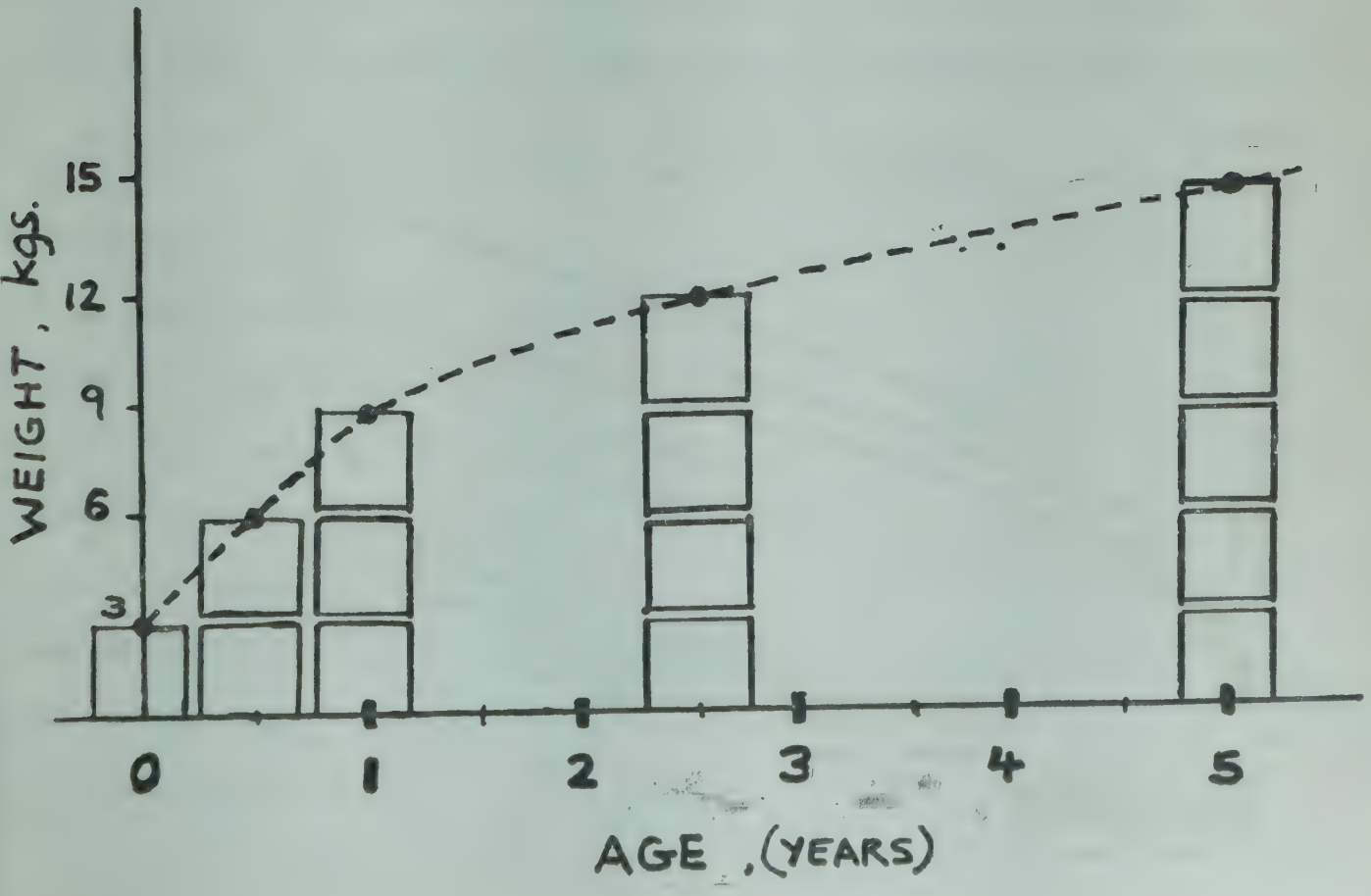
We also know that a normal healthy child doubles his weight by six months of age. We can represent this weight then by 2 blocks.



Similarly at 1 year (12 months) he should weigh 3 times his birth weight - that is 3 blocks.



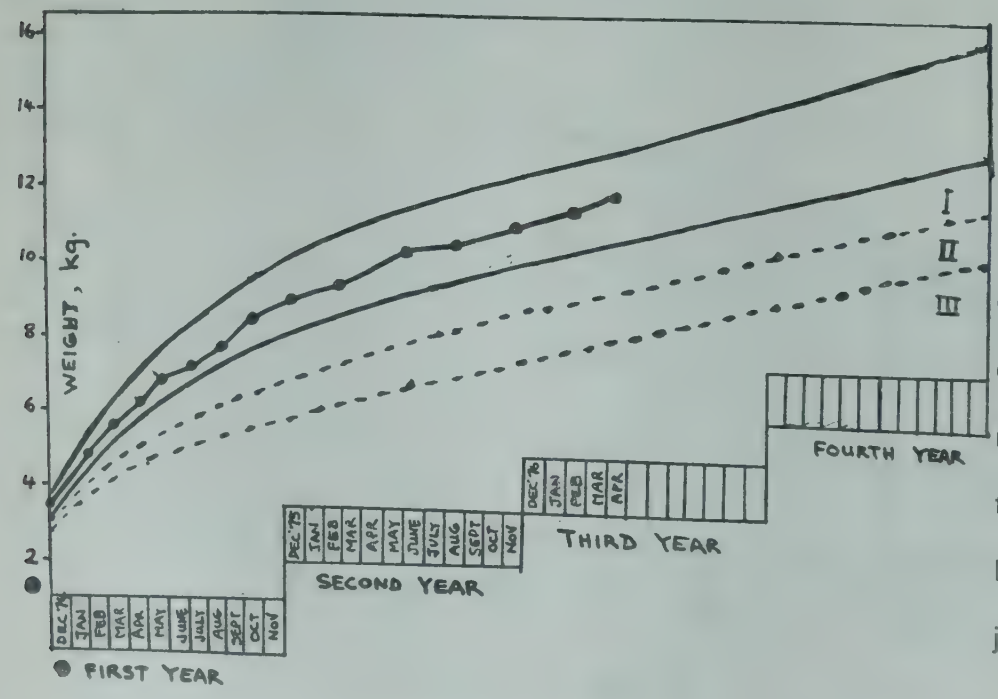
At $2\frac{1}{2}$ years he should weigh 4 times (4 blocks) and at five years he soould weigh five times (5 blocks) his birth weight. If we line up these weights, we can compare the different weights of a child as he grows in age.



The flat line at the bottom shows us the age of a child in years. If we connect the tops of these weights, this line would represent the normal growth of a child during these 5 years. We call it a growth line or growth curve. This is the same line that we see on the Road-to-Health Card. Using this line we can find out what the child should weigh at any time between 0 to 5 years.

The health card has the individual 12 months of each year marked on the "age line" so that we can determine the expected weight for any age in months of a child; for example 7 months or 33 months and so on.

As you can see this "growth line" is not exactly straight — rather, it is curved, especially between birth and 1 year. This is why it is called the 'growth curve ' It rises very quickly during this period; especially during the first 6 motnhs. This is because the infant gains weight most quickly during this period; after 1 year normal growth slows down a bit so that the line becomes almost a straight line though it is always slanted UPWARD.



Now let us look again at the "Road - to - Health" card, and at the curved line which is marked in red ink - this line is the some line that we have just seen above.

Instead of drawing in boxes for each age we can find out the weight at a particular age with the help of an 'up & down' line at the left side of the chart. This line represents weight in kgs. Let us use this chart to find out what a child should weigh at different ages

For example what should a $1\frac{1}{2}$ years old child weigh. First of of all we must determine the child's age in exact number of months: that is, $1\frac{1}{2}$ years is 18 months. We then find this age on the bottom line. To find the correct weight we go, straight up from the age line to the growth curve and then from this point on the growth curve go straight across to the left to the weight line. We see a child should weigh between 9 and 10 kgs.

How can we use the Health Chart?

Now we know how a healthy child's growth line should look like. We hope that all children can grow and gain in a similar way. By using a graph like this we can easily find if a child is the right weight for his age or if he is underweight. We weigh him, ask his mother his age in months, and put a mark on the graph opposite his age and his weight.

DEMONSTRATION

For example, Muthu is 24 months old and he weighs 10.5 kgs. We follow along the bottom line to 24 months (2 years) and then go up to 10.5 kg. and make a mark here. This mark is close to the normal growth line, and so we know that Muthu weighs enough for his age, and so is probably healthy.

Where do you think the mark would be on the graph for a malnourished child?

Let us take for example several children here at the Nutrition Centre. Lakshmi is 12 months old, but she only weighs 4 kgs. Again follow her age on the bottom line; then atraight up to the 4kg. line. We can see that the mark is much BELOW the normal growth

curve. This is how the chart tells us if a child is malnourished. If his mark is BELOW the normal growth line he is malnourished. If very far below, he is very malnourished if only a little below, he is probably only a little malnourished. If his mark is CLOSE TO the line or ABOVE then his weight is adequate.

PRACTICE EXERCISE: Plotting "weight for age" of the NRC children.....

The Different "Grades" of Nutrition:

There are two extra lines on the chart besides the normal growth line. These extra lines are dotted lines and are not so dark. If a child is malnourished and his weight is below the normal line, these lines help us to decide just how much malnourished he is.

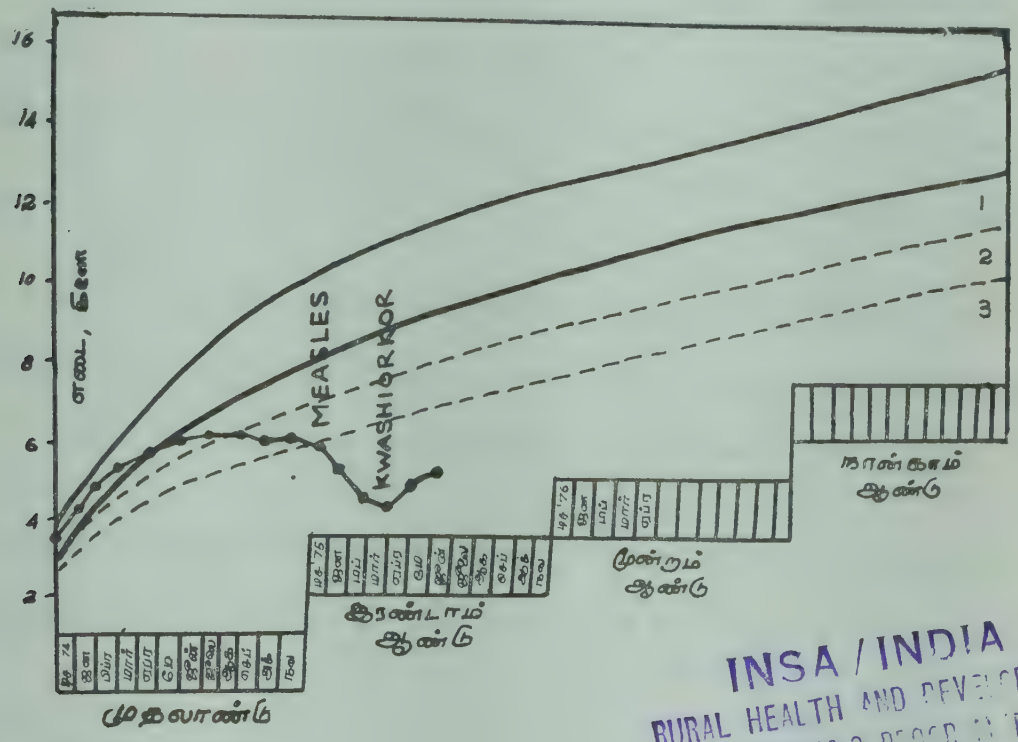
If his mark is between the normal line and the first dotted line the child is only slightly underweight. In fact; many children have their weights come here. This is called Grade I malnutrition But if his weight comes between the 1st and 2nd dotted line - he is quite underweight. If his weight comes below the second dotted line he is very underweight - very malnourished and needs immediate nutrition care. This is called Grade III malnutrition.

So the health card tells us if a child is malnourished and how severe his malnutrition is. Another very important thing the health card can tell us is if a child is growing or not over a certain interval of time. If we weigh a child every month we see if the child is gaining weight as he should - if his weight does increase each month, so that his marks continue to go UP then we know he is growing well.

The Road-to-Health Cardcan tell us 2 things: if a child in the right weight for his age; and also if he isGROWING well

What does the growth curve of a malnourished child look like?

Let us take one of the Nutrition Centre children as an example. If Mohan had been weighed each month from his growth curve would have probably looked like this.



INSA / INDIA
RURAL HEALTH AND DEVELOPMENT
TRAINER'S PROGRAMME
2. BENSON ROAD. DENISON TOWN
BANGALORE-560 046.

DEMONSTRATION:

For the first six months his weight increased well so that his weight followed closely to the normal healthy curve. But after 6 months he did not gain as much weight as he should have because his mother did not feed him anything except breastmilk. As we talked about before, after a child reaches 6 months breastmilk is no longer enough food for a baby to grow well.

This is why his growth line begins to go straight across instead of going up. By 18 months his mother was still only feeding him breastmilk and a waterys congee. Both these foods are good foods for a child but by themselves are not enough for a child to grow well.

As we can see by his chart, Mohan actually stopped growing at all by 9 months and then his weight began to decrease. By 18 months he was severely malnourished and very close to dying. If you had been able to look after Mohan from his birth and had been weighing him each month, you would have known by the time he was 7 or 8 months that his mother was not feeding him enough after 6 months of age because his growth line had begun to fall below the normal line. You could then have taught his mother how she should feed him better.

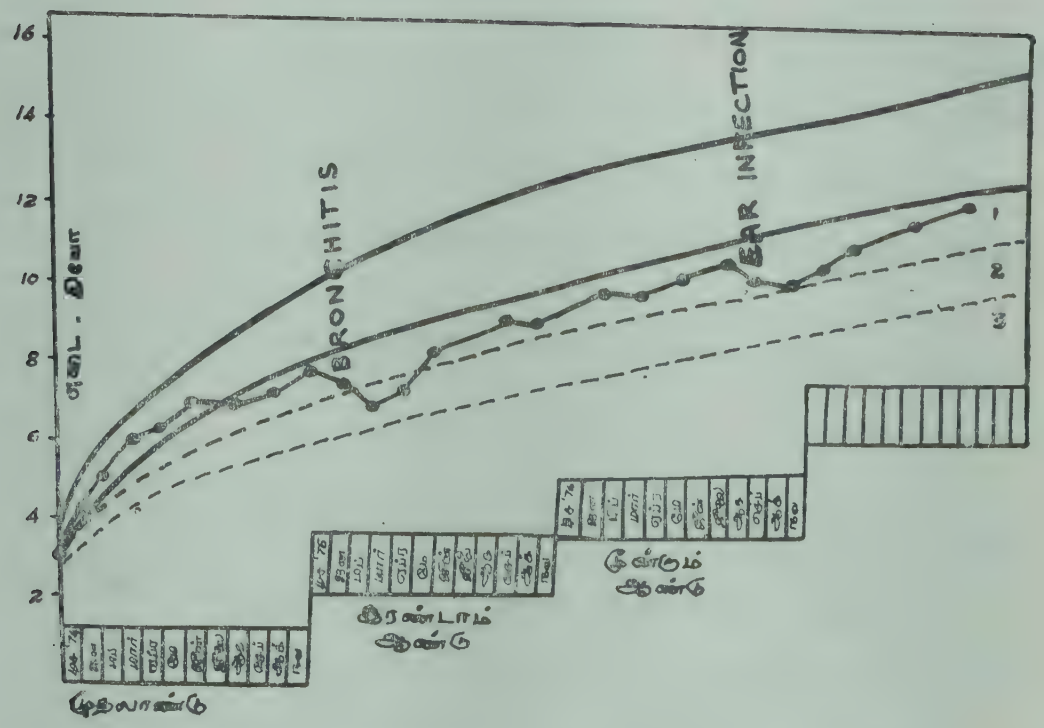
In this way you could have PREVENTED him from getting severely malnourished. If a young child is weighed each month and his weight put on the health card, a VHW can find malnutrition EARLY when it is still mild and easy to correct.

Mohan is lucky that his mother brought him to the Nutrition Rehabilitation Centre. There are many more children like him that actually die without good nutrition care.

What does the growth card if a child look when he becomes sick?

Every time a young child becomes sick, he stops growing because of the infection. If the child is given nutritious food and given good treatment when it is necessary, he quickly gets better and begins to grow, that is, gain weight once again.

But if the child is not given nutritious food during the infection, the infection lasts a long time (many weeks or even months) and not only does he stop growing but often he begins to lose weight. This can easily be seen on the child's health card if he is weighed every month; instead of his growth line going UP and staying close to the normal line or above it, it starts to go STRAIGHT ACROSS or DOWN.



As soon as the VHW sees that a childs growth line is not going UP as it should she knows he has probably has an infection like diarrhoea or T. B. OR is not being given enough food OR BOTH, This is a danger sign; she must teach the mother to feed the child more and show the child to the doctor when he comes in case he has an infection.

You can see then how useful and important the Road-to-health card is for keeping the children of your village healthy; this card is as important for a VHW's work as the stethoscope is for a doctor's work!

Indirectly, the Road-to-health card tells us if the child is HEALTHY as well because children must be healthy for them to grow. By measuring growth we come as nearly as we can to measuring health.

> By measuring growth of a child we are measuring his health

Blinding Malnutrition:

Besides causing death for many young children, malnutrition also causes many other children to become permanently blind. This blindness is caused by not enough of a particular kind of "protective food" — foods that contain Vitamin A.

Here at the Nutrition Rehabilitation Centre you have seen many children who have already gone blind because of lack of Vitamin A.

This is a great tragedy ! - for the child, for his family and for the nation! Because none of these children would have gone blind if their mother had only known to include in their children's daily food some green leafy vegetables. It is even more tragic because these green leafy vegetables are available in all villages and are so inexpensive that any mother can afford to buy (or grow) them!

Later we will discuss other foods that provide Vitamin A but among them all "greens' are the most easily available, most inexpensive and most nutritious. Unfortunatelly "greens" are thought of only as a very poor man's food-or simply fodder for the cows. This is a very wrong belief - because human beings need greens to be healthy. A lot of sickness India and blindness is because people have this wrong belief.

> Malnutrition blindness can be easily prevented with daily "greens"

In other children at the centre, you will see early signs of Vitamin A deficiency - warning signs that the child is in danger of going blind.

These signs are dryness and wrinkling of the white part of the child's eye - especially the outer white part. Also common are grey - white patches on this same part of eye, called Bitots' spots.

You are all familiar with Night Blindness - a common complaint in the villages especially in children. This is due simply to lack of vitamin A and is an important sign that the child is in danger of permanent blindness.

Just before a child goes blind, the dark part of the eye loses its shinny look - and because hazy. If the child does not get Vitamin A immediately, he will surely go blind within a few days.

Whenever you see any children with any of these signs, you must convince his mother to feed greens, (plus any orange/yellow coloured, vegetables or fruits) to her child immediately and every day. The vitamin A these foods contain will not only prevent blindness but also will make the whole child healthier and stronger!

> "Among fresh vegetables, a fair amount of leafy vegetables must be taken every day"
>
> —M. K. Gandhi

CHAPTER IV

NUTRITION

We have talked earlier about how a young child can be fed so that he grows well and stays healthy. There are some very important practices, such as giving infants regular extra food when he reaches 6 months of age along with breastmilk, and also giving him a "mixed" diet - that is foods of different kinds.

Why is it that babies and all people need to eat different kinds of food?

If we looked at all the many different kinds of foods from rice and ragi to greens and sweets we could find that all foods can be grouped into 3 main groups of food according to what they give our bodies.

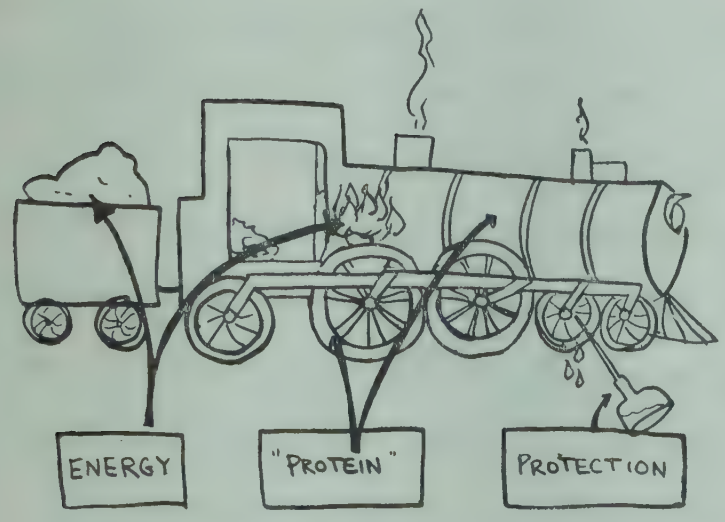
One group of food gives us mainly ENERGY.

The second group of foods makes our bodies GROW and also REPAIRS our bodies when they become injured or infected.

The third group of foods gives us protection-protection from infection and disease

1. ENERGY
2. GROWTH AND REPAIR
3. PROTECTION

We can compare the 3 foods needs of a human being to a train engine.



The train engine needs energy, to pull the rest of the train - this energy comes from the fuel, usually coal or wood.

The engine needs iron and other metals to build up its body. Much iron was needed when it was first being built; but still iron is needed to repair parts that naturally wear out. This iron is like the protein that a child's growing body needs.

To run smoothly, and to protect it from breakdowns it needs grease or oil in its wheels and other parts.

So it is with people; we need energy foods so that we can do work; we need protein foods for growth and repair of our badies and we need protective foods to prevent sickness and "breakdowns" or disease.

This may be a useful story to teach the mothers in your village so that they understand exactly why the different foods are important.

Every child and adult needs foods from each of these 3 groups every day if he is to be healthy. Adults don't need quite so much of the second group (called "protein") because they have finished growing but they do need some for repair.

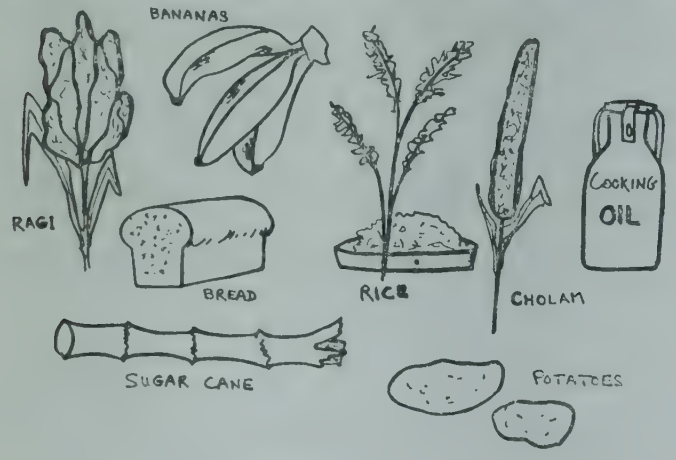
For example, if you wear a pair of shoes for a long time the soles will wear out, but if you wear no shoes the soles of your feet do not wear out. This is because new skin

is always being made underneath the old skin. The hard skin that touches the ground i being worn away, but the new skin underneath is growing all the time to REPAIR it.

So it is with our hair and every part of our bodies - inside as well as the skin and hair. When the boby is injured by an infection even more repair is needed so that sick people especially need extra protein to repair the harm done by the illness.

Children need lots of protein because they are growing very fast and they also need extra protein for repair, like the adults. Also a pregnant mother needs extra protein so that her baby can grow well inside her. In the same way if she is breastfeeding she needs extra protein so that her milk has good protein for baby to grow with. Pregnant and breas-tfeeding women actually need more of all kinds of foods as well as protein foods.

To which group do the different foods being?

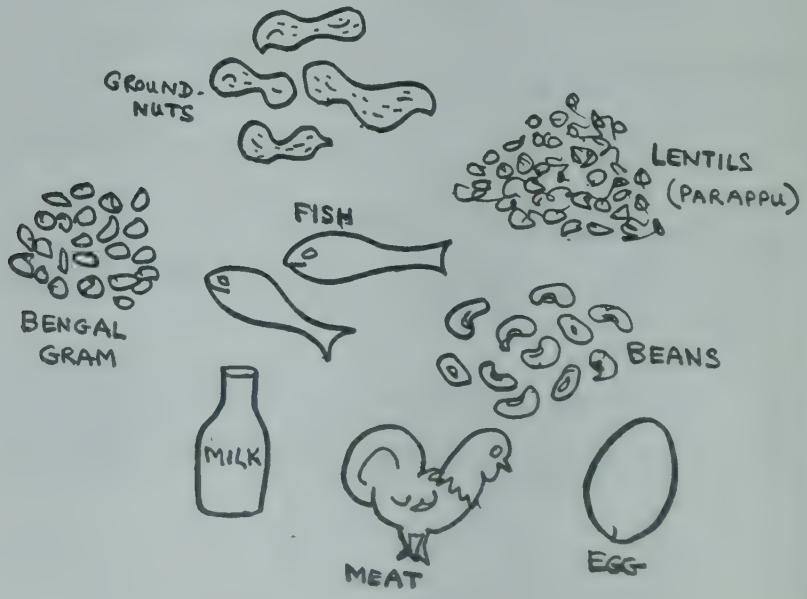


Energy foods :

Rice, ragi, Bajra, Cholan, wheat Potatoes, bread, oils; sugar'

Protein foods :

Dhals and Grams, Groundnuts, beans, milk, eggs meat, fish.



Protective foods :

Green leafy vegetables, carrots, tomatoes beans, and other vegetables; and fruits, especially guava, gooseberries mangoes, pappayas.

DEMONSTRATION:

Som foods are more nutritious than others

Within these groups, some foods give more nourishment than others. For example green leafy vegetables give much more protection than the same amount of cabbage. And brinjals give no protection at all! even though they are more expensive to buy.

One of the reasons why many children are poorly nourished is that their mothers do nothave much money to spend on food. Because they have little money it is important that they learn to buy the most nutritious food with the little money which they do have.

For example, let us look at the different protein foods to see how much protein each contains. Let us imagine that a mother has only 20 paisa to spend on buying protein food for her child on a certain day.

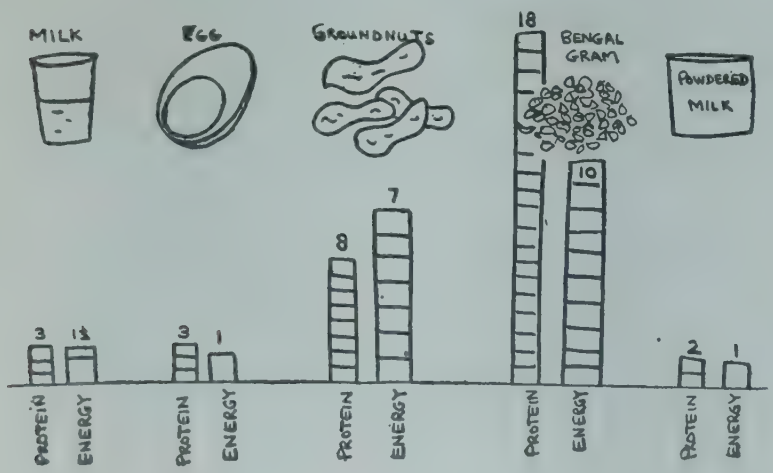
Would she get more protein if she bought 20 paisa worth of milk. or 20 paisa work of dhals or 20 paisa work of groundnuts?

Scientists have found how much protein there is in each food. With 20 paisa, the mother could buy only half a tumbler of MILK and this amount of milk would contain 3 grams of protein.

With 20 paisa, she could buy only half an EGG (1) and this half egg would also contain approximately 3 grams of protein.

20 paisa would buy 40 grams of GROUNDNUTS containing 10 grams of protein (3 times as much as milk!)

With the same 20 paisa she could buy 100 grams of BENGAL GRAM which would contain 24 grams of protein - 8 times as much as milk.



The picture below compares the amount of protein (1st column) and energy (second column) in 20 paisa worth of each of these foods.

We can see that a mother does NOT have to be rich to give nourishing food to her children. BUT she does have to know how best to spend her money to make sure her child gets the most nourishment.

Most people with even university education do not know this but you can teach all the village mothers and grandmothers. This is another very important thing to teach them.

This is not to say that mothers should never buy milk or eggs for their children. Milk is a very nutritious food and it is easy for young children to digest, but it is also very costly! First she should buy ENOUGH of the much cheaper protein foods for her children and then if there is any extra money. she can then buy the more costly foods like milk, mutton or eggs

Dried fish if available in your village may be the one exception to animal proteins being too costly. It contains very much protein (20 paisa may buy 50 gram of dried fish containing 13 grams of protein) and is very inexpensive.

The protective foods are similar. Leafy green vegetables especially drumstick leaves are extremely rich in a protective food that prevents blindness. They are also the least expensive of the fruits and vegetables so every mother can afford to give all her children "greens" everyday.

In the same way guavas and gooseberries are very rich in protective nutrition and are not costly whereas apples and oranges have very little nutrition compared to guavas and gooseberries though they are very costly.

Many nutritious foods are not expensive

The Need for a "Mixed" Diet:

As we talked about before a mother should try to make each meal she prepares for

her family contain some food from each of the 3 groups of foods. For example for supper if she prepared rice with lots of dhall (parapu) sambhar and boiled or fried greens, she would be giving her family a very nutritious meal. There is protein in the dhal sambhar; there are many vitamins (protective food) in the greens; and there is energy in the rice. This is a very common type of meal in India — the mothers from the ancient times have recognised what makes a nutritious meal without the help of scientists !

But often, though adults have "mixed" meals, their young children do not get such a mixture of these 3 types of food - and unfortunately it is even more important for growing young children to have plenty of foods from the 3 different groups of food.

They need extra protein for growth as well as repair and they need protective foods because children often get infections.

What happens when any of these 3 typesof food are not given regularly to a child?

If a child is not given enough protein foods after 6 months of age he develops kwashiorkor.

If he does not get enough protective foods he may become blind like many of the children here at the nutrition centre. We have seen the warning signs of Vitamin A deficiency in many of the children here as well. These signs, night blindness conjunctival 'dryness' Bitots spots are very common in the children in your villages. And we have talked about how this can be easily prevented by simple foods such as greens, papaya, carrots, tamatoes.

Some children are very pale, that is their nails and tongue are very white compared to other children. This means that their blood is very weak, and this is also because they have not been eating enough dark green leafy vegetables and ragi. You may notice

this in women especially if they are pregnant. It is very dangerous for pregnant women to have weak blood-as you probably know already.If they eat dark leafy green vegetables every day during pregnancy this will help to protect them and the future child from weak blood.

Another common sign of lock of protective foods is angular stomatitis. Along with greens, pulses and nuts are foods which will prevent this.

As well as these specific signs, children who don't get enough protective foods will get many more of the common infections.

If a child does get enough of ALL of these foods (growth, energy, protective foods) like the children who is only given breastmilk till 12 months, he will become marasmic -very skinny and will stop growing altogether.

But babies need their food specially prepared

We know that the young child has a great need for a mixed diet, but it is also true that it is more difficult for very young children to eat these different foods in the same way as adults. This is especially so for the child between 6 and 12 months - he has only a few teeth and so cannot chew his food as well; and unless his food is very well mashed for him we will not take it easily. He also may get diarrhoea if it is not prepared in a very clean way, or if he eats too much of one particular kind of food. for example, groundnuts.

To prepare specially food requires time and energy from the mother. This is particularly difficult for the mother who works all day - she has little time left over even to cook the regular meals for the family, let alone special meals for the young child. In fact this is probably the main reason why many mothers do not give much more food than breast milk

until the child is one year or older. AND THIS IS ONE OF THE MOST IMPORTANT CAUSES OF MALNUTRITION IN VILLAGE CHILDREN. THEY DO NOT GET ENOUGH FOOD AFTER 6 MONTHS OF AGE.

How can village mothers easily prepare special nutritious food for their infants?

What suggestions do you have?

_____

_____

Several of the methods that are used at the nutrition centre here are as follows :

1) Roasted bengal gram is ground into a fine flour and stored in tins. Whenever a ragi or wheat porridge is made 3 spponfuls of this is added to each childs porridge/congee at the beginning of the cooking of the porridge/congee.

This should be started at 6 months; as the child grows he will need gradually more.

2) Groundnut cake flour alternates with dhal as the protein food added to the porridge.

A mother can grind enough bengalgram or groundnut cake for a month and store it in a tin with a tight lid or in an earthen jar. Each time she makes porridege /congee for her infant she should add three spoons of this flour.

(or she can have groundnut cake ground into flour at a mill for a few paisa. And she can store the Four in the same way).

Porridge made of ragi or wheat or rice alone has very little protein. A mother should add a protein food every time she makes porridge.

A mother should never give just plain porridge to her child

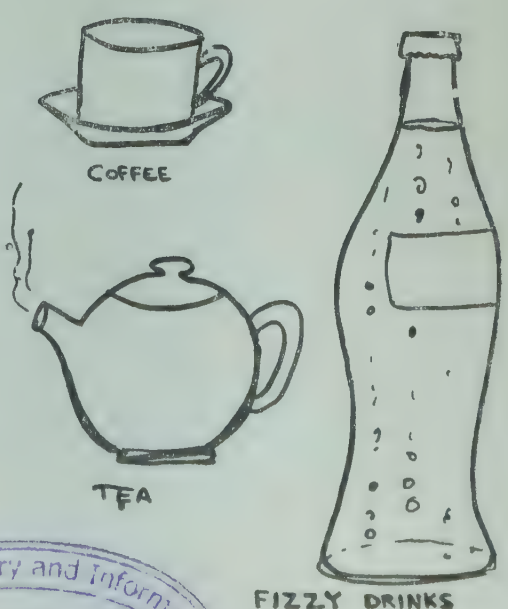
For the infant 5 or 6 months old who may not take smashed greens easily, the mother instead should add the water left- over after boiling the greens for the rest of the family (or the juice after squeezing the cooked greens leaves) This watar will have much of the protective nourishment from the leaves in it. This "greens water" should be used to make the protein porridge for the infant. In fact, even if there is no infant to give this water to, it should never be thrown out - instead it should be added to the family sambhar.

By 9 months the infant should be taking mashed greens By 12 months the child should be able to take the same kind of food as the rest of the family, but without the hot spices (a mother can take the baby's portion of the food out of the pot at the end of cooking just before adding the peppers).

Non foods : what is a "non food" ?

Things like coffee, tea and fizzy drinks, are called "non foods" because they have no nutrition value for children - except for the small amount of milk and sugar added to coffee or tea.

They are very bad because not only are they very costly and so waste family money that could much better be spent on nutritious food. But as well coffee and tea especially take away a child's appetite - so that he does not eat the nutritious food that his mother does make for him.



TM-110
16118
Library and Information Centre
CPHE - SOCHARA
Koramangala
Bangalore - 34

Coffee and tea should not be given to young children

What beliefs are there in your village about feeding different kinds of foods to young children?

Discussion

CHAPTER V

The "BLOCKS" to Good Nutrition for the Young Child

We have talked about what foods will make a child grow well and be healthy. Every mother wants this for her child.

There are many things the VHW can teach them; let us review these ways.

1. A child must start eating solid food in addition to breastmilk by the age of 6 months.
2. Plain porridge is not enough. Some protein food must always be added to the infant's porridge.
3. A young child needs at least 5 meals a day besides breastmilk.
4. Sick children need food.
5. A good food is a "mixed" food.
6. Bottle feeding is bad.

What other reasons are there that cause children to be malnourished besides mothers not knowing the best foods to give?

---

1. Infections cause a child to become malnourished:

How is this?..... ...

Infection causes damage to the child's body. To repair this damage he needs extra food; especially protein body-building foods. But often illnesses make a child not

want to eat, and so unless the mother encourages the child to eat he will become malnour ished. Measles is a good example, because it often makes the childs mouth sore so that it painul to eat. A wise mother will prepare special soft nourishing food so that her child wil eat inspite of having an infection.

If a child has diarrhoea some of the food that he eats may go out of his body again in his stools; he needs to be fed extra food so that his body can use it.

If a child has worms in his stomach, the worms will eat some of the food he has taken and stop him from getting it!

2. Unfair shares of food:

A mother may grow or buy enough food and she may cook it well. But her younger children may still become malnourished because they do not get their share of the family's food. A young child needs a lot of food for his size; he eats so slowly that the rest of the family may have eaten everything before he has had enough. Meals like this may be a competition to see who can eat the fastest. The youngest child always loses this competition and thus does not get enough to eat.

To prevent this a young child should have a separate plate of his own and should have all parts of the meal mixed together, rice or ragi, sambhar and vegetables, and someone should help to feed them. By doing these things a mother can makes ure that her young child gets enough of the family's food.

3. Children coming too close together:

We have talked about how very important it is that a child have his mother's milk until he is 1 to 2 years old. Anything which stops him getting this milk is bad for his nutrition. We have seen this in many of the children here at the N. R. C.

One of the things that may stop him getting this milk is if his mothar/becomes pregnant again. Although it is quite safe for a pregnant woman to go on breastfeeding her child she has only a small amount of milk when she is pregnant. Some mothers think that the milk a pregnant woman has is not good, but actually it is the very same as that milk before she become pregnant except there is less of it.

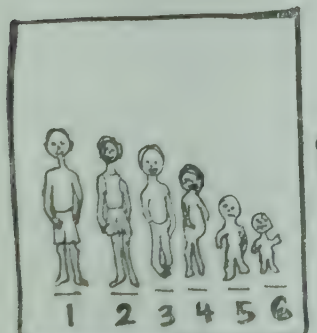
What do the women in your village believe?... ... ..

Besides, a mother's own nutrition may be harmed when she has 2 people to feed besides herself - one at her breast and another in her womb. Thus it is bad for a mother to become pregnant while she is still breastfeeding. It is bad for her nutrition and it is bad for her child's nutrition.

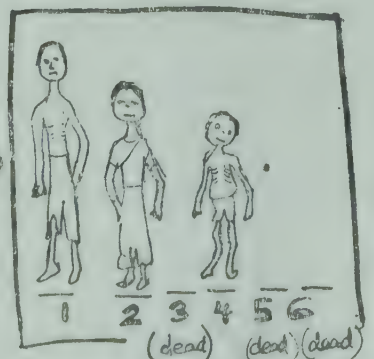
If we are to prevent a mother becoming pregnant while she is still breatfeeding there must be a proper space, (or as it is called the 'birth interval') between the births of eash of her children. This interval should never be less than 2 years; it is best for health of her children to be 3 years.

CARELESS, CLOSE PLANTING

A BAD HARVEST



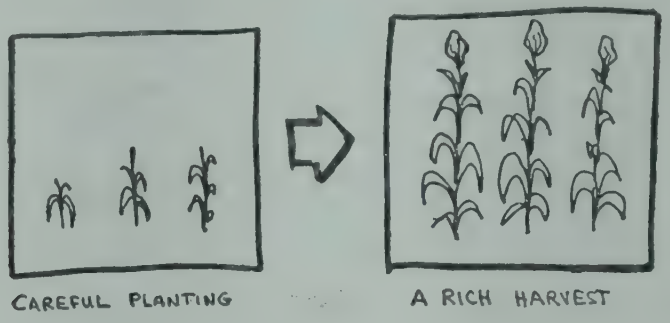
CHILDREN TOO CLOSE

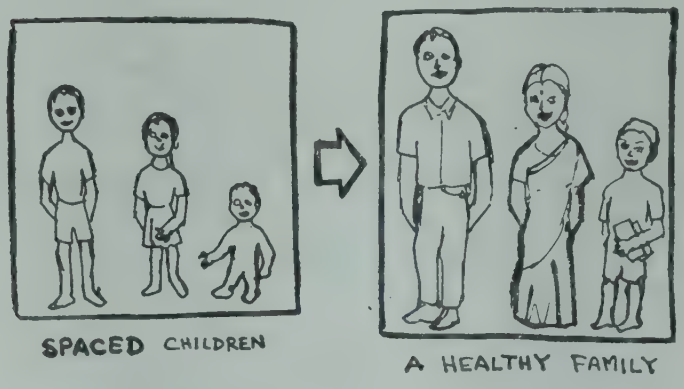


AN UNHEALTHY FAMILY

But many mothers have children almost every year. We can compare what happens to children when they are born too close together, to rice plants in the fields if the young seedlings are planted too close together There is not enough nourishment in the soil for all of them, and so NONE of them grow well, and in fact many of them die. The former has a poor harvest.

Just like this when a mother has many children too close together there is not enough breast milk and family food for them. None of them grow well and in fact some may die, of kwashiorkor and marasmus. Even the children who do live are not as strong and healthy as they could be if they had not had so many brothers and sisters so quickly.





4. Mothers having to go out to work during the day

A very important cause for malnutrition is that many mothers have to work in the fields during the day and they must leave their young infants at home. Sometimes there is no one else at home to feed the baby except a young sister or brother. So it is that the young child is fed well only when the mother comes home in the evenings and so is fed only twice each day instead of 5 times, which is NOT ENOUGH!

If a mother is not home during the day, you must teach her to leave a special dish of food for the young child from the morning's meal for the young child to be given only to him during the day when she is away.

What other suggestions do you have?

5. Scarcity of Fuel:

Most food has to be cooked, especially young children's food. But wood is very costly and difficult to gather. This is one of the reasons many villages families only cook once a day. This is a pity because young children need porride at least 3 times a day. Thus lack of fuel is cause anothers malnutriton.

What can the mother do if she can only afford to cook once a day?

She can make enough porridge for 3 meals for her young child in the morning, and keep the rest of the porridge in a clean covered dish or wrapped in a clean banano leaf, and feed the child in the afternoon and again in the evening with this special porridge

Often mothers are busy working in the fields during the day especially during harvest reason and they take their young children to the fields with them. If she prepares enough porridge for 3 meals in the morning then, she can take it wrapped in a banana leaf her for child to eat during the day.

6. Bad Budgeting:

Few families have all the money they want, so they must spend what money they have very wisely. Most important of all is the right kind of food.

We have seen how much energy and body-building nourishment a mother can buy with 20 paisa if she buys groundnuts or pulses rether than eggs and milk or mutton. This is very important to teach the mothers how they can more wisely spend their money.

7. Broken families:

When a father and mother have left one another their children often become malnourished. A mother alone has to work to earn money for her children and herself - and so

she has very little time to spend feeding her children and giving them care. Even if she ret urns to her family 's home, there often is not enough food for herself and her childre These mothers need extra teaching and advice from the VHW because they will have muc difficulty in keeping their children well nourished and healthy.

What can the mothers do?

8. Young asleep during the family's evening meal:

Young children need to be given food as often as possible each day. Often young children fall asleep in the evening and their mothers do not want to wake them to give them food. This is a pity because their food is much more important than a little sleep. In fact some children sleep more simply because they are malnourished!

The VHW must teach every mother to wake their young children up to give them their share of the evening meal.

9. Unavailability of foods:

In some villages mothers will say that they cannot buy certain nutritious foods at certain times of the year or that if they are available they are very costly in certain months.

First the VHW could advise then to buy plenty of the nutritious fruits and vegetables that are "in season" because they are very cheap. If a mother feeds her children tomatoes very often during the season when they are cheap and available the protective nourishment will last in their bodies for several months, The same is true with mangoes or other seasonal fruits.

Secondly greens are the most important food for preventing blindness. The VHW can show each village mother how she can grow greens in her own home in the courtyard. so that the mothers have greens to give their children all year round.

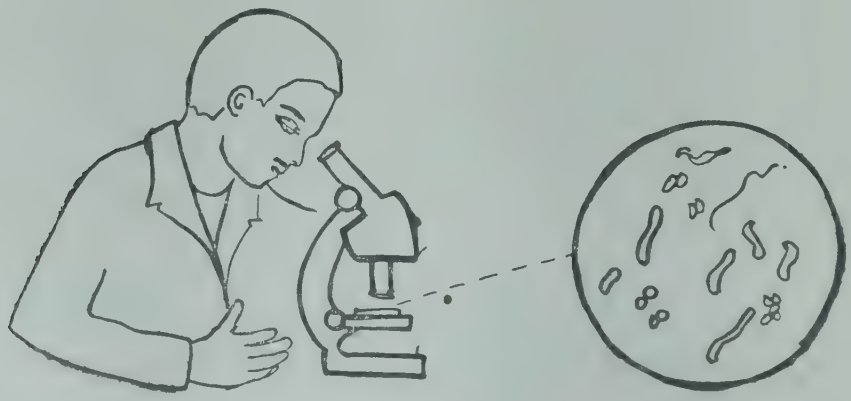
There are probaby other "blocks" to good nutrition for the children in your village that you may become aware of when you are working as a VHW. What other Blocks can you think of.

But together with tne families and leaders in your community you should be able to find solutions to them too.

CHAPTER VI

HYGIENE

We have learned about the healthy child and the malnourished child. Now we shall look at the some of the common illnesses of children. But we must understand what it is that CAUSES infections. You know that children sometimes have worms in their stomach. The worms are large and easy to see when they are passed in the motion. Most infections are caused by similar worms but which are extremely small, so small they can not be seen by us. But they can easily be seen with special equipment called a ''microscope''. (you will remember looking at some of these tiny worms in the microscope a few days ago in the Infectious Diseases ward of the hospital)



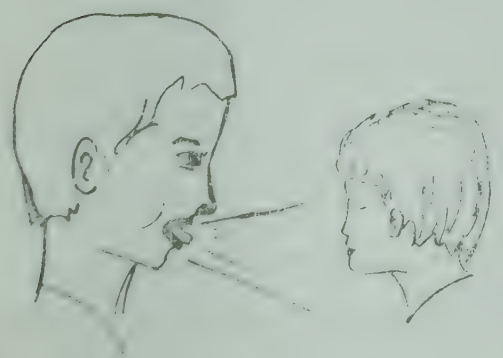
We call these tiny worms, "germs". Doctors use a microscope to see if a person has "germs" and to decide what kind of "germs" he has.

If a doctor were to examine the fluid from an abcess with the microscope he would find thousands of tiny worms (germs). When he examines the sputum of someone with T.B. he will see TB germs; if he examines a small piece of skin from a man with leprosy he will see leprosy germs. There are different germs for every infection-measles, colds, pneumonia, tetanus, whooping cough, scabies etc. And when the doctor gives medicines the medicine helps to kill these germs in the body.

Different germs like to live in different parts of a person's body. The germs which cause diarrhoea live in the stomach and intestine and are passed in the stool. Pneumonia or T.B. is caused by germs which infect the lungs - these "germs" are passed in the air during coughing or in sputum.

How do infections pass from one person to another?

Some infections are passed directly from one person to another. When a person with TB coughs, many T. B. "germs" come out from his lungs in the air that he coughs or in the sputum that he spits. A person close by can breathe in this air which is full of "germs" into his own lungs. If they are young children they can develop T.B. quite easily this way especially if they are poorly nourished.



Many infections are passed indirectly from one person to another through the stool; worms, diarrhoea, jaundice, dysentery and typhoid fever are some of the diseaseses passed in the stool.

How do the "germs" in the stool reach another person?

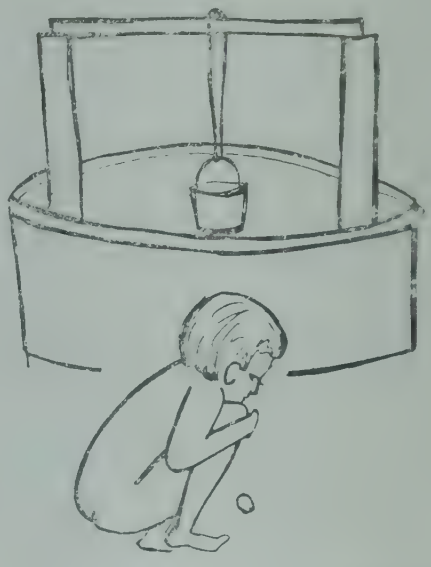
There are several different ways.

First, by unclean hands

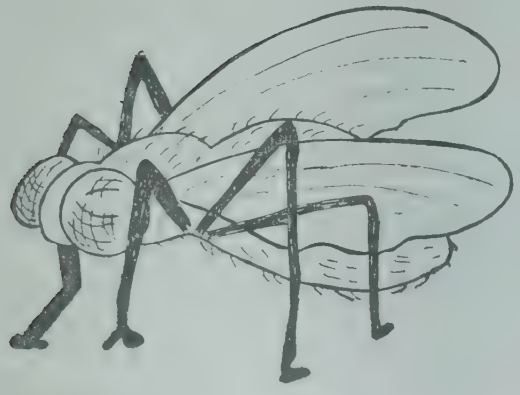
For example, if a mother does not wash her hands very carefully after passing motion she can pass infection from her hands to her child when she feeds him, either when she is preparing his food or when feeding him.

Second, by water

If water for drinking is taken from a pond or well near where adults or children pass motion the water in the pond or well will have germs from this stool and when people drink this water they develop diarrhoea or other diseases. Young children especially infants can very easily have diarrhoea this way. This is why infants should only be given water which has been boiled first because boiling water kills any germs that might be in it



Third by flies.



You know how flies are found near animal and human stool. This is because flies lay their eggs in stool and so flies are born in and develop from stool. This means that flies are very unclean indeed! They carry the tiny "germs" from stool to our food which they sit on, to our water which we drink, and to a child's eyes and mouth when they sit on his face.

Flies are an important cause of infection

The Idea of 'Infectiousness'

The germs of some infections pass from one person to another very easily, very quickly. Colds and measles in children are examples of such infections.

But other infections like leprosy do not pass so easily to others. Children who develop the early signs of leprosy (a light patch on the skin) usually have become infected from an adult in the family who already has leprosy. But usually takes several years of close contact with an infected person before someone else develops leprosy.

If there are so many germs, how can we protect ourselves and children from infection?

There are several different ways of protection from infections.

A. Preventing the germs from entering our bodies.

1. (Hygiene)

B. Making the body resistent to the germs when/if they do enter.

2. (Immunization)

3. (Good Nutrition).

1. HYGIENE

Most diseases are given from one person to another person. T.B. as we have seen is passed during coughing of someone who has T.B.; colds, and other infections are also passed this way. If everyone covered their mouth when they coughed they would not give so easily these infection to other people.

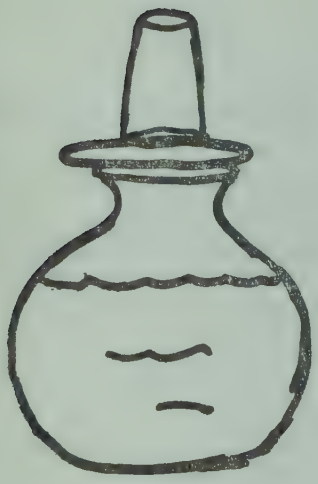
The many diseases which are passed by stool can be prevented in the following way:

a) If a mothers washed her hands carefully before preparing food for her children and before feeding them, this would prevent germs being passed from her hands to her children. Also, she should wash her children's hands before they eat. And if she cuts the fingernails of her children regularly then dirt (which contains germs) won't collect under the nails.

b) Many germs and infections can be passed through unclean water. Because germs are too small for us to see, we can not tell if water is clean, (that is, has no germs) just by looking at it. Fortunately there is an easy way to make sure water is clean; that is by boiling it. If water is boiled carefully most germs in it are killed.

Because young chiidren get diarrhoea so easily and because it is much more serious for them, young children, especially less one year, should be only given water which has first been boiled.

Fuel is very expensive, so many village mothers cannot afford to boil all the water which her children require. Instead they could keep a special



earthern jug for the boiled water. She should fill this with boiled with water specially for the young children in the family. It is very important that only a clean cup be used to take water from it and her hands be clean when she does. Also she should keep the jar covered to keep dout ust and flies.

c) Flies are the third important way germs from stool are passed to other people. If mothers covered all food so that flies could not walk or sit on the food she would help to prevent her child getting diarrhoea. Also she should never buy fruit or sweets or any other food that has had flies sitting on it.

We know too that flies lay their eggs in stool waste so flies are born in stool. If all the villagers covered their night soil; (far away from wells or ponds) But it is an easy thing to do (even cats do this!)

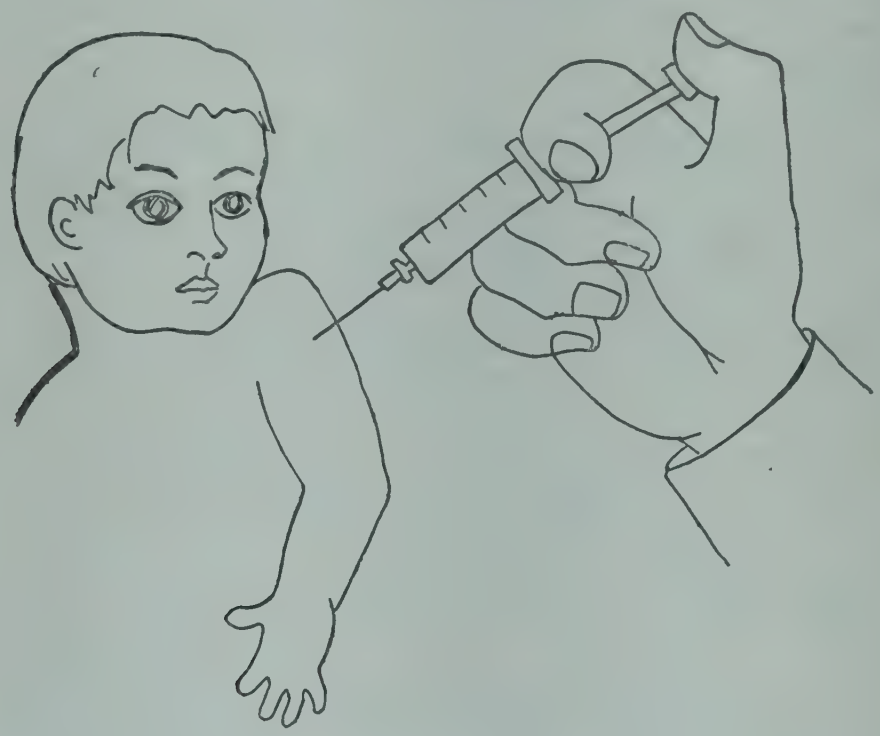
A VHW should teach the mothers and grandmothers first and do this herself, and after a while the hole village would know to cover their nightsoil.

This would make everyone in the village healthier because there would be no flies and so less diarrhoea.

A mother should prevent flies from sitting in her family's food and water

II, IMMUNIZATION

For some diseases such as Measles, diptheria, whooping co ugh, or polio it is very difficult to prevent the germs from entering the child's body, because these germs are passed in the air. But if the child has been immunized before, his body will be strong to kill the germs when they do enter and so the disease will be prevented.



The following diseases can be prevented by immunization.

Tetanus,

Whooping cough,

Diptheria,

Polio,

Small pox

T.B., (BCG vaccination either prevents T.B. or at least makes the infection less severe)

Measles (Measles vaccine is not available now in India, but soon should be).

Immunization cannot CURE the disease once the child is sick; rather it PREVENTS the disease from occuring in the first place.

III GOOD NUTRITION

The third important way we can help to prevent disease is by having a strong healthy body to fight the germs. Good nutrition makes the body strong. For example measles in a chubby well - nourished child is a mild disease which lasts only a few days. But when a malnourished child gets measles, it often causes severe diarrhoea, perhaps, pneumonia and even death.

So the ways we can prevent serious illnesses are:

1. Hygiene
2. Immunization
3. Good Nutrition

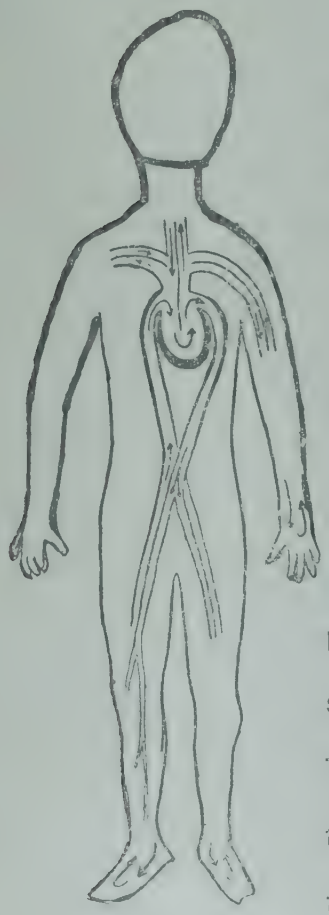
> **Good hygiene prevents many germs from entering our bodies. And Immunization and good Nutrition makes the body strong to kill the germs if they do enter.**

CHAPTER VII

THE HUMAN BODY

To understand how disease and infections affect the body it is important first to know the different parts of the body and how they work.

THE HEART:

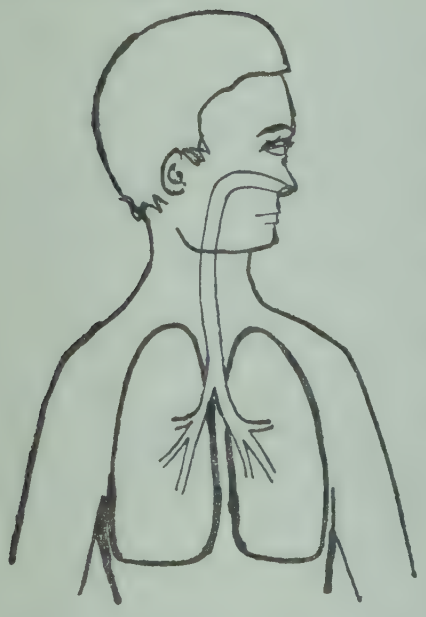


The heart is a pump. It pumps the blood to all parts of the body. The blood carries the digested food and also fresh air to the different parts of the body. This air and digested food keep the body healthy and allows for growth.

The blood flows away from the heart in large tubes ("vessels"). These tubes gradually branch into many smaller ones until in the tips of our fingers the vessels are very small.

Similar vessels take the blood back to the heart for more pumping. Along the way back to the heart the blood passes the stomach and lungs to pick up more air and finely digested food. The blood continuously circles through the body ..... away from the heart to all the tissues in the tiny vessels and then back again to the heart.

LUNGS:



The lungs are two large "balloon-like" organs that fill the chest. When we breathe, fresh air flows through our nose down into the chest. Here the fresh air is absorbed into the blood through very tiny blood vessels which surround the lungs. The air is then carried by the blood to all parts of the body to keep the body healthy.

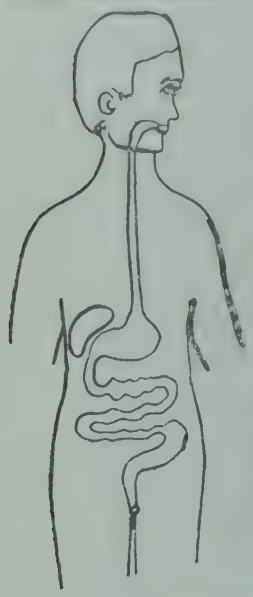
Sometimes infections occur in the lungs. PNEUMONIA is a severe infection and often occurs in young children. This infection in the lungs makes the child breathe very fast and in an unusual "grunting" way. These short breathes are because he has pain when he breathes. TUBERCULOSIS (T.B.) is another example of an infection in the lungs. It produces large abscesses in the lungs.

Less serious infections occur in the TUBES which lead down from the nose into the lungs (see picture). An infection in these tubes causes coughing and fluid (sputum) to be formed. However this kind of infection usually lasts only a few days (compared to the cough and sputum caused by TB in the actual lungs.)

When the infection is in the upper part of the tubes, such as the nose and throat, this is called a "cold". Much fliud is produced in the nose, "Colds" are very common especially in young children. However they are not a serious infection compared to an infection down in the lungs, like pneumonia.

DIPTHERIA is a particularly serious infection in the throat. It causes so much swelling that it makes breathing very difficult and so causes death.

THE DIGESTIVE SYSTEM ("STOMACH")



The "stomach" is made of two parts. First a large sac just below the ribs in the middle of the body. This sac receives the food when we eat and digests (mashes) it into very fine bits. After being "mashed" the food enters the long "intestine". In the intestine the food is slowly absorbed into the blood by tiny blood vessels which surround the intestine. After the food is in the blood it is taken to all parts of the body for growth and health. The food that is not used is passed out of the body as stool.

To help the mashing of the food the stomach adds much water. As the watery food passes down the intestine this water is gradually reabsorbed that is, taken back into the body tissues. Thus, the motion is normally quite solid not watery.

What happens when there is diarrhoea?

When there is diarrheoa the stomach and intestine move the food along so quickly that there is not enough time for all the water to be reabsorbed. This means that much water comes out with the mction.

When there is much diarrheoa too much water is lost from the body (passed out in the motion) This loss of water makes the body become dehydrated. This dehy dretion is the commonest cause of death in children.

THE KIDNEYS:

The kidneys are two small but very important organs at the back of the abdomen. They control the amount of water in the body by making urine. They also help to get rid of some of the waste materials from our bodies.

A tube from each kidney takes urine to the bladder in the pelvis. (see picture)

If there is not enough water in the body the kidneys cannot make enough urine. This means that they cannot clean the body of "wastes". If there is no urine for more than a day or so there is great danger of death from these wastes which remain in the body.

This is why a dehydrated child dies. His body becomes so dry that no urine can be formed by the kidneys to take away the wastes from the body.

THE FEMALE REPRODUCTIVE SYSTEM:

Within a woman's pelvis is the womb. At the upper end are two very tiny tubes which lead to two small organs called the "ovaries". (see picture)

Each month a single egg (so small that it can only be seen using the microscope) is released from one of the ovaries. The egg travels through the tube to enter the womb. This usually happens on the 14th day after the START of the last menses. If the egg is "fertilized" by (joins with) the male seed at this time then a baby will begin to grow.

The egg stays in the womb for only two days during each month. After two days it dissolves.

Why is there the monthly ''menses''?

Every month the womb develops a fresh lining which is rich in blood. This lining is in preparation for receiving the fertilized egg (an egg that has joined with the male seed) and for development of a baby. If the egg is not fertilized then this lining of the womb is not needed. Instead it is shed and flows from a small spening at the lower end of the womb into the vagina. This is the ''menses''.

We will talk more about pregnancy and the menstrual ''cycle'' at a later training session.

What is the Family Planning Operation?

The operation for women wanting Family Planning is the cutting and tying of the two tiny tubes between the ovary and the womb.

Tying these tubes prevents an egg from reaching the womb. Thus the egg cannot join with the male seed and no new babies can come.

THE MALE REPRODUCTIVE SYSTEM:

The male reproductive system consists of a pair of organs called ''tastes'' in the scrotum. The testes produce the male seed. (''sperm'')

The male seed flows along a small tube which leads up into the pelvis. This tube joins with the same tube which takes the urine away from the bladder and out through the penis.

A similar tying of the tubes leading from the testes is the operation for a man wanting Family Planning. This operation stops the flow of the very tiny ''sperm'' (also too

small to be seen except in a microscope) but does not stop the main amount of fluid which carries the "sperm".

After the operation when a man has relations with his wife the same amount of fluid is produced ..... but it does not contain the tiny sperm (male seed). This means that a baby cannot be formed.

THE BRAIN AND NERVES:

The brain is the "director" of the body and the seat of our consciousness. It enables us to talk and think. Through its system of nerves which come from it, it controls all the functions of the rest of our body - our heart, stomach, legs arms etc. A large cord containing these of nerves comes from the brain and runs down the back giving off branches of nerves to each part of the body.

These nerves activate the muscles for action. They also receive sensation (such as pain and temperature) from the skin and organs.

An example of an infection in these nerves is leprsoy. In leprosy, the infection destroys specifically the "sensing" nerves in the skin so that the individual can no longer feel pain or hot or cold in his fingers and feet.

Because he does not know when he burns or injures his hands or feet he can not protect them and they become ulcered and damaged.

An infection in the brain itself such as severe T.B. causes less of consciousness., fits and often death.

CHAPTER VIII

THE SICK CHILD

INTRODUCTION:

Children can be protected from many diseases by immunization, cleanliness and good nutrition. But there are still some infections such as colds, pnemuionia and some diarrhoea that cannot easily be prevented. Diarrhoea and chest infections are the common cause of death in young children especially under age of 2 years. So it is very important that the VHW learns to recognise and treat these infections well - and to know when they become severe and need to be sent to the hospital immediately.

> A VHW must know how to treat infections well in their early stages; and to recognise when they are severe and require immediate hospital treatment

Sick children need feeding:

Before we talk about specific infections we should remember that a child with any infection needs to be given nourishing food so that his body has energy and strength to fight the infection. If he is to get well he must be given the extra food that his

body needs to repair itself. One of the most common causes of severe malnutrition is that a mother does not feed her child when he has common infections like diarrhoea or measles.

If the child is still being breastfed his mother should continue to breastfeed him. Breastmilk is almost the best medicine that a sick baby can get!

When an older child is sick his mother should try to feed him even if he is not hungry. He will need patient "coaxing" to eat, and he may not like his usual food. So she should make something special for him that he likes. Often he will eat a more "babyish" food -- like porridge or bread and milk.

Sick children need food

A. DIARRHOEA:

Let us first discuss diarrhoea. You know that diarrhoea is very common in children especially in children under 2 years of age. And also that it is a very commom cause of death in children.

What do we mean by diarrhoea and why can it cause death?

When we talk of diarrhoea we mean FREQUENT and WATERY stools. Village mothers recognise this diarrhoea. When it is severe they say that the "motion is like urine". The reason diarrhoea is dangerous is because it makes the child lose much water from his body and when he loses too much water he becomes DEHYDRATED and dies. Just like a tomato or rice plant dries up and dies without water, so does the child! Unfortunately many mothers think that when a child has diarrhoea giving him water will only make more water come out in his stool. Though we can perhaps understand why a mother might think this way, this is a very wrong belief.

In fact, when a child is losing water with diarrhoea, it is extremely important that he be given water by mouth. If not, he may become dehydrated and die.

This is a very important lesson to teach the village mothers (and grandmothers).

> A child with diarrhoea always needs to be given lots of water

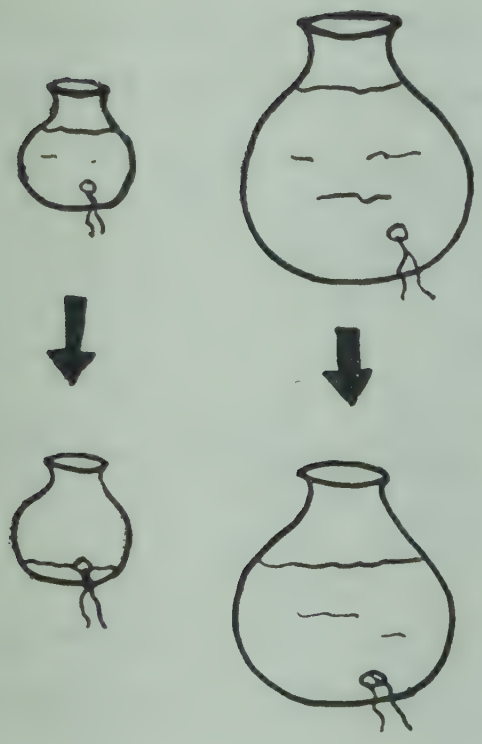
Why is "severe" diarrhoea so dangerous?

Sometimes diarrhoea is so severe that inspite of giving the child water frequently he loses too much water in his motion. We can think of an earthen water jug with a hole in it; if the hole is small then water leaks out only slowly-- it can be replaced by continuously putting more water in the top. But if the hole is very large, we cannot fill the jar as fast as water is leaking out from the bottom. Inspite of our efforts the jar will soon lose all its water.

So it is for the child with severe diarrhoea (by "severe" we mean very frequent.) Inspite of giving him water to drink, he is in danger of dehydration.

Why is diarrhoea in infants especially dangerous?

The younger a child, the less water he has to lose, and so the easier it is for him to become dehydrated.



Indeed, we can make another comparison. We can compare a young child, an infant, to a small water jug; and a larger child or adult to large water jug. If both the small and large jugs are losing water at the same rate the small jug will become empty much sooner, than the large jug.

And so it is with small children, especially less than 6 months of age; when they have diarrhoea they can lose all the water from their bodies very quickly. Which means that they can become dehydrated very quickly and die very quickly with diarrhoea.

So you can see it is even more important that the infant should have extra water given to him when he has diarrhoea.

If the diarrhoea is not too severe, the mother can feed her child enough water to replace what he is losing in his motions. But if the diarrhoea is severe, for example, every hour or so, or if the child is vomiting so that what water she gives him comes back out when he vomits, then the child is in danger of losing too much water. He must be taken immediately to hospital where doctors can give water very rapidly to him by a needle through the veins in his arm or legs, when diarrhoea is very frequent or comes with much vomiting this is only way a child's life can be saved.

Unfortunately some mothers let their child lose so much water that he dies before he reaches a hospital or dies before enough water can be given to him even by the needle at the hospital.

The VHW must teach all village mothers how to treat simple diarrhoea by giving extra water when the diarrhoea first begins - to prevent dehydration. She must also recognise when diarrhoea is severe or is accompanied by considerable vomiting, and to send these children immediately to hospital

What exactly do we mean by "severe" diarrhoea?

We have already said that if a child has watery motions approximately every hour this is severe; if only every 2 or 3 hours it is not so severe.

Another way to think of severeness is the number of times the child passes watery motion in one day. If a child under 6 months has more than 6 watery motions during the day, then he is losing too much water. (you probably know that a very young breastfed infant often normally has up to 5 or 6 stools a day. This is not diarrhoea, because the stool passed each time is only a small amount and is formed, not watery, and he normally has this number of motions each day)

For an older child if he passes more than 10 watery stools in a day he should be sent to hospital.

How can the VHW tell if a child is dehydrated?

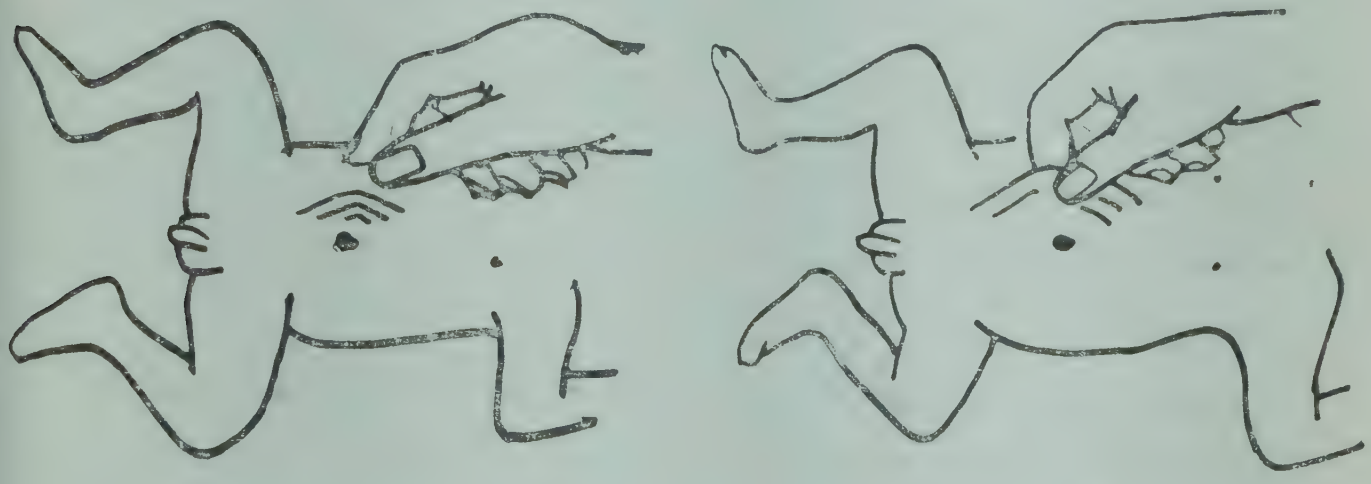
It is very important for the VHW to be able to recognise when a child is dehydrated because these children need to be sent to hospital immediately.

1. First of all, because a child who is dehydrated has lost too much water he will be THIRSTY, and his mother will probably have noticed this. Also he won't be passing much or any urine.
2. Secondly, his lips and mouth become dry.

3. Also you may already have noticed how sometimes the soft spot on a young child s head (''fortanelle'') becomes sunken when he loses water during diarrhoea.

4. Or that his eyes seem to sink back into his head.

5. His skin becomes dry and when pinched does not fall back into place quickly.



These last three signs are all signs of severe dehydration. When a child becomes like this he will often be very drowsy and will probably die very soon unless he is given water very quickly by special treatment (by needle) at a hospital.

(But sometimes in a child who is very malnourised, his skin and eyes also look like this, even though he is not severely dehydrated.)

The earlier signs of dehydration are THIRST and DRYNESS OF LIPS AND TONGUE.

A child with any signs of behydration should be sent to hospital immediately

To decide how severe a child's diarrhoea is the VHW must do 2 things; First she must ask the mother questions.

1. About how often the child is passing stool.
2. If the motion is watery
3. If the child has vomited; if so how many times?
4. If the child has stopped passing urine?

Secondly she must examine the child to see if there are any signs of dehydration.

Only afer asking the right questions and examining the child well can she make a wise decision about whether the child can be safely treated in the village or needs to be sent to hospital.

When in doubt, it is safer to send the child to hospital to let doctor decide

When in doubt, it is safer to send the child to hospital to let the doctor decide

Ler us summarize the reasons why a child with diarrhoea should be sent hospital for treatment.

1. A child with any sign of dehydration
2. A child less than 6 months old who is having more than 6 watery motions in a single day.
3. For children above 6 months, having more than 10 watery motions in a single day.
4. A child with watery diarrhoea evey hour. (''severe'' diarrhoea)
5. A child having watery diarrhoea PLUS VOMITING more than twice in a single day.

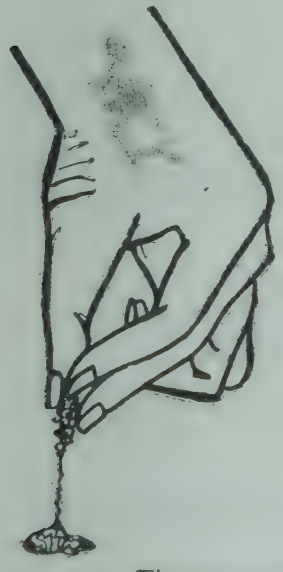
How can the VHW and mothers treat MILD diarrhoea in the village?

Many children have diarrhoea which is not so severe that they need to be sent to hospital. The VHW should teach every mother with young children how to treat the common mild diarrhoea of children.

The most important treatment is giving water. There is much water in breastmilk and also much necessary nourishment; therefore the first thing the mother should be taught is to continue breastfeeding (This is important when the child has any kind of infection not just diarrhoea) But breastmilk alone is not enough. She must give EXTRA water.

This extra water should be BOILED water. Often the cause of the child's diarrhoea is unclean water. That is water that has tiny "germs" in it. Therefore a child with diarrhoea should be given only boiled water. (Boiling kills any germs that might be in the water.)

The best wayto give this extra water is to add some SUGAR and very small amount of SALT to it. The sugar gives the child energy which he needs. And because he loses a small amount of salt in his diarrhoea stool he needs to be given a little extra salt. It is easy to prepare this mixture - we shall call it the "sugar-and salt water mixture": To one large tumbler of boiled water 2 spoonfuls of sugar should be added and a quarter teaspoon of salt. Only a little salt is needed. More salt will not help the child-it may make him worse because he will vomit.



An easier way to teach the mothers how much salt to add is to tell her that she should add as much as she can pinch in three fingers.

The amount of sugar should be what she can hold in her 4 fingers.

(If available the water from a tender coconut should be added to this sugar-and salt water. Coconut water is especially good for treating diarrhoea. Or if lime juice is available, it can be used instead of the coconut wster)

DEMONSTRATION

A mother may understand better what she has to do if you show her in her home, and then have her actually prepare the mixture in front of you.

She should give the sugar-and-salt water by cup and spoon, slowly and continously. If it is given too quickly the child may vomit.

How much "sugar and salt" water should be given?

A child should be given one tumbler of sugar-and-salt water every one to 3 hours. If the child has already had much diarrhoea he will need one tumbler every hour to give his body enough water. A mother should continue giving the extra water until the diarrhoea has stopped. If he needs the water for more than 2 days he should be sent to the hospital.

Most children soon get well again if they are given plenty of this sugar-and-salt water as soon as they start to get diarrhoea. It may be necessary to give the child S.G.T. (Diarrhoea tablets) and kaolin medicine as well, but sugar-and-salt water is more important and is often all that is needed.

When a child has diarrhoea, giving EXTRA WATER is much more important than any medicines

One of the most important things a VHW can do is to teach mothers to give their children this special water as soon as they start to get diarrhoea. If every mother did this then few children would become debydrated and few would die.

When should SGT and kaolin power be given?

SGT–Tablets for Diarrheoa:

SGT is white tablets in the jar with the RED label. This medicine is for diarrhoea.

When a young child has diarrhoea for more than a day he should be given

this medicine for 3 days, as well as his breast milk and sugar-and-salt water.

The child must be given exactly the right amount of medicine. If he is given too much the medicine will make him very sick.

For the child less than 6 months he should be given one third ($\frac{1}{3}$) of a tablet three times a day (in the morning, afternoon and again in the evening)

For the child between 6 months and one year - he should be given half tablet three times a day.

For children between 1 and 4 years - they should be given 1 tablet 3 times a day.

For the older child between 5 and 12 years, 2 tablets 3 times a day. Above 12 years, and for adults, 3 tablets should be given 3 times a day. (For children above 12 or adults, they will not need to be given SGT unless they have diarrhoea for many days, say 6 or 7 days.)

SGT should be given for at least 3 days even if he gets better before the end of the third day; otherwise the child or adult may get the infection once again.

Kaolin Power: This should be given only on the first day of diarrheoa once in the morning and again at night. Each spoon of powder should be mixed with 3 spoons of water before giving. It should not be given to very young babies less than 3 months old.

3-12 months	half	teaspoon	morning	and	night
1-4 years	1	teaspoon	"	"	"
5-12 "	2	teaspoon	"	"	"
7-12 "	3	teaspoon	"	"	"

Let us repeat these dosages and ages many times so that you easily remember----

DEMONSTRATION- - -

So that the mother knows exactly HOW to give the medicine, you should place the tablets required for all 3 days in her hand, and point to each tablet or half tablet saying "morning" "afternoon" "evening and repeating this for all the 3 days' tablets. This will help her to remember when to give the medicine and how much.

You will learn how to give other medicines later when we talk of other infections. But first make sure you know how to give SGT medicine for diarrhoea.

Let us repeat treatment of diarrhoea in young children. These 4 ideas should be taught to every mother whose child has diarrhoea.

1. Continue breastfeeding
2. Give sugar-salt-water mixture
3. Give SGT and Kaolin powder if diarrhoea lasts more than 2 days.
4. Re-start solid foods as soon as possible. Porridge with some mashed protein food (paruppu) added is the best food to give the child with diarrhoea.

If a child with diarrhoea is treated at home as we have talked about adove the VHW must return to see the child every 8 to 12 hours. She does this to make sure that he child has not become dehydrated since first seeing him, A young child with diarrhoea can suddenly become very sick very quickly and needs to be seen often by the VHW. THE VHW must also check to make sure the mother is following the advice she has given her.

The VHW should see children with diarrhoea (especially very young children) at

least twice a day until the diarrhoea has stopped to make sure the child is getting better.

A child with diarrhoea should be seen often by the VHW until the diarrhoea stops

Note; If you send a child to hospital because of severe diarrhoea, make sure that his mother takes a large vessel of sugar-and-salt water with her to feed him on the way to the hospital. It may be many hours before the child is seen by the doctor and he could become very dehydrated and die if not given water during these hours.

"CHRONIC" DIARRHOEA:

When we talk of diarrhoea we usually mean frequent watery stools that begin suddenly in a child and usually stop after a few days. This sudden kind of diarrhoea is dangerous because a child can lose much water from his body in the watery stool, If he loses too much he can die from "dehydration".

But when you ask mothers, some will say that their child has had diarrhoea for a whole month or even many months! We call this kind of diarrhoea "chronic" that is, it is mild but continues for a long time, and is not so watery. Because this diarrhoea is mild the child probably will not lose too much water. But because it continues for a long time it causes the child to become malnourished because all the food he eats passes through his stomach too quickly to be used to build his body. This kind of diarrhoea can also be the result of malnutrition, especially Kwashiorkor. If so the only treatment for the this kind of diarrhoea is to give plenty of nutritious food so that the child is no longer malnourished.

Any child with chronic diarrhoea - mild diarrhoea continuing for a long time - should be seen by the supervising doctor when he comes to visit.

Perhaps the commonest causes of chronic diarrhoea are (1) the child eating or drinking unclean water (unboiled water) (2) malnutrition itself. The VHW can try giving SGT for 3 days, BUT the much more important thing for her to do is to teach the mother how to feed her child better and about hygienic ways to keep water and food. Especially important is to teach her to boil any water she gives to the child. Boiling the water kills any "germs" ("Keerumee") that may be in the water. This helps to prevent the child from getting diarrhoea.

B. PNEUMONIA

The second commonest cause for death in young children is pneumonia. Pneumonia is a severe infection in the chest (lungs) and is especially common in children less than 6 months old.

Unfortunately it can often be difficult to diagnosis pneumonia in very young children. For this reason the VHW must think of pneumonia as a possibility every time she sees a sick child under the age of 1 year, especially if the child has fever and cough, or signs of difficulty in breathing.

How to know when a child is having difficulty in breathing?

A child with pneumonia has difficulty in breathing because of the infection in his lungs. To see if a child has difficulty in breathing the VHW must remove the child's clothes to SEE HOW the child is breathing. What should she look for?

First: A child with pneumonia will ALWAYS be breathing very quickly. (An infant normally breathes in and out about 40 times per minute. The VHW must recognise normal breathing of a healthy infant so that she can easily decide if a child is breathing faster than is normal.)

Secondly: Another sign of pneumonia in a child is that the skin between his ribs sinks in when he breathes. This is a sign of difficult breathing. Many mothers in the villages recognise when a child is breathing like this and they call it "panting like a dog".

Thirdly: A child with pneumonia SOMETIMES has "grunting" noisy breathing.

Fourthly: SOMETIMES when a child has difficulty in breathing his nostrils will become wider open each time he breaths in air.

Any child with any one of these signs, especially who has fever or cough should be immediately sent to hospital.

Pneumonia is most common in children under 6 months of age, but in such young children it is also most difficult to diagnosis. It is good to remember that a child with pneumonia often has difficulty in breast feeding. Any child who suddenly does not take his mother's milk easily should be sent to hospital immediately because he may have pneumonia or some other very serious diseases.

The VHW should NEVER try to treat pneumonia in the village; rather she must convince the mother to take her child immediately to hospital

DEMONSTRATION: PAEDIATRICS WARD. . . . Children with pneumonia.

OTHER INFECTIONS:

The children in her village will have other infections not so dangerous, such as colds and throat, ear and skin infections. The VHW must learn to distinguish (tell the difference between) a serious chest infection like pneumonia, and the very common infection in a child's nose and throat, the common "cold."

"Colds" as you know are very common in children. The child has a "runny nose" mild cough and sometimes a sore throat and he may have a slight fever for the first day. These infections usually get better on their own - in fact there is no medicine that can cure them. The best treatment is good nutritious food.

> A child with a "runny nose" doesn't need strong medicine like SDT.

In a few children however, a "cold" can lead to a more severe infection of the throat or ear. These more severe infections are caused by different "germs" than those causing the simple "cold"; these infections can usually be cured by the stronger medicine SDT. (the white tablets in the BLUE jar.)

How can we decide which child has the simple "cold" and which children have gone on to develop the more severe throat or ear?

First of all the child will appear more sick, will be more quiet and will probably have moderate fever. He will also probably have pain where the infection is. If the child is old enough he can tell his mother that he has pain in his ear or throat or chest. But usually these children are too young to be able talk. A young child with an ear infection

will often pull at his ear with his hand. If a young child has a throat infection he may have some difficulty swallowing or much coughing.

For these infections the VHW should give SDT for 3 days. The number of tablets is the same as for the diarrheoa tablets – SGT.

(If there is severe difficulty in swallowing he may have diptheria and should be sent to hospital.)

A child with a simple cold will have a mild cough for several days. He only needs cough syrup. However, if this cough continues for more than 2 days with fever he should be given SDT.

CONCEPT OF FEVER:

It is important to understand the meaning of fever. Fever is not a disease in itself; rather it is only a sign that a person has an infection. Just like a sign board outside a town the sign itself is not the town but only tells that there is a particular town there.

One medicine called ASA is very good at taking away fever and making the patient feel better, but in fact it has no effect against the actual infection in the person's body.

And so it important to remember that though ASA makes the patient feel better the much more important medicine is SDT or SGT which actually fights the infection in his body and helps him to become healthy again.

Often young children will have a fever with only a mild infection and there is no need to give any medicine except ASA. But when a child has a specific infection like

severe cough or sore throat or ear ache, the fever then indicates that the cough or sore throat is a severe infection and should be treated with the strong medicine SDT.

All children often get mild sore throats or mild coughs. They will get better without SDT. But if there is fever along with their sore throat or cough this means that the infection is a more severe one and requires SDT.

SDT is a strong medicine; it can be dangerous if given too much or when not needed. So the VHW must wisely decide when it is needed and give it only when it is required.

SDT tablets are a strong medicine and should be given only when specially needed

Let us summarize these ideas:

A. FEVER plus symptom:

1) Fever and cough for more than 2 days - - - SDT.
   (no difficulty breathing or breastfeeding)
2) Fever and Sore throat - - SDT X 3 days: if no improvement - hospital
3) Fever and ear pain or pulling at ear - - SDT -- (if discharge give ear drops as well)

B. Symptom without fever:

1) Cough for more than 4 days without fever - SDT
2) Ear discharge without fever or pain -- ear drops
3) Ear pain or pulling at ear -- SDT

Note: Difficulty in breathing or breast feeding with or without fever -- hospital.

It is important to be able to tell the difference between a common simple "cold" and the more serious infections BECAUSE the VHW must know when to give SDT or when to send these children to hospital.

"Colds" are so common that if the VHW gave all the children SDT when they had colds, then very soon SDT would lose its strength to cure the severe infections for which it is so important. It must be saved for the infections which really require it.

Also if the VHW were to advise the mothers to take them to hospital each time they developed a simple cold the mothers would soon stop listening to them! The strength of the VHW's advice would weaken, just as the curing strength of STD weakens if used too often when not really needed.

How to Give SDT:

If a child needs SDT, for a severe cough or ear or throat infection, the amount to give is exactly the same as for the diarrheoa tablets (SGT). The SDT are white tablets in the jar with the BLUE label (SGT is the RED LABEL)

INSA / INDIA
RURAL HEALTH AND DEVELOPMENT
TRAINER'S PROGRAMME
2. BENSON ROAD, BENSON TOWN
BANGALORE-560 046.

Let us practice the dosage again - - - -

It is very important that the child be given SDT for AT LEAST 3 DAYS. The medicine will take 3 days to have any effect on the child's infection. If given for less time than this, its effect will be useless! Even if the child starts to get better before this, his mother MUST give him ALL the medicine for the full 3 days; otherwise the infection may come back again, and then be even more difficult to cure.

The VHW must also remember that if the child is sick enough to need SDT she should see him at least once a day until he is better - just in case that he becomes more

sick and should be sent to hospital. For children with diarrhoea the VHW should see them twice a day; and for those children with infections in their throat or ears and requiring SDT, they should be seen at least once a day.

The VHW should ask the mother to bring her child to be seen again. BUT if she doesn't for some reason, the VHW should go to the child's home to see the child.

FEBRILE CONVULSIONS: (FITS that occur when a child has fever)

An important use of ASA - (aspirin) is for the child who tends to have convulsions when he has fever.

There are many different causes of convulsions in young children but the commonest cause is simple fever - fever from any cause. The main way to prevent them is to take away the child's high fever as quickly as possible so that he does not continue to have convulsions.

The most important and effective way to lower a child's fever is to bathe him in cool water. We will show you how to do this with a child here at the centre.

DEMONSTRATION

This is a practice which may surprise many of the mothers in your village. They will think it is wrong at first. But you must teach them that this is the most important thing for them to do when their young child develops high fever - if he has a history in the past of having convulsions when he had fever.

What do the mothers do in your village when a child has a convulsion — —

Lef us discuss these ideas — — —

The second thing though not as quickly effective is to give the child ASA (fever tablets). ASA takes away pain, but it is also used to take away fever.

(However if the child has just had a convulsion when you see him he should not be given ASA until he is fully awake; otherwise he may choke)

Reasons for referring a child who has convulsions?

If the VHW is treating febrile convulsions she also must be able to tell the difference between a convulsion caused by a simple fever, and a convulsion with a more serious cause like an infection of the brain.

1) If the child has been very sleepy or very sick BEFORE the convulsion or
2) If he has more convulsions inspite of having been bathed and given ASA or
3) If he has no fever when he has the convulsion

... ... he should be referred to hospital immediately because he may have a very dangerous infection of the brain and if so, will probably die if not immediately taken to hospital.

To decide if a child convulsion is simple because of fever or some serious brain infection the VHW must:

1) Ask the mother if the child has a history of convulsions whenever he has high fever,
2) Ask the mother if the child was fairly well before the convulsion. If yes, treat and observe. If no, send to hospital.
3) Ask how many convulsions the child has had that day. If more than 2, send the child to hospital.
4) OBSERVE the child after the convulsion; if he remains very sleepy for more than a few minutes, send him to hospital immediately.

Any child who has a febrile convulsion should be seen by the supervising doctor as soon as he visits.

Let us repeat the reasons why a child who has a convulsion should be sent to hospital ... ...

How to give ASA (fever/pain tablets—shall white tablets in white jar)

Age	Dose
0-6 months	1/4 tablet twice a day (morning and evening)
6-12 months	1/2 " twice a day
1- 4 years	1 "
5-12 years	2 "
more than 12 years	2 "(2 or 3 times a day)

(NEVER give ASA For stomach pain)

EYE And EAR Infections:

The VHW will also have medicine drops for eyes and ears.

Let us talk first about the eye medicine. If a child (or adult) has an infection in his eyes whitish sticky fluid will collect along his eyelids especially at night. This can be cured by putting 2 drops of eye medicine in both eyes (even if only 1 eye looks like it is infected) morning and night. The child should also be taught not to rub his eyes with his fingers or the infection will some back.

The VHW must very CAREFUL when she is putting the 2 drops in the childs or adults eyes. She must NOT touch the dropper to the eye or lids of the patient. Otherwise

the infection will enter the medicine and when she puts the drops in any one else's eyes she will give the medicine as well as the infection in it! Demonstration... .. ...

She also must know that the yellow labeled bottle is the eyes medicine only, and the black labelled bottle is for ears only

The VHW should put 2 drops of ear medicine only in the ear with the fluid coming out of it. She should also be careful not to touch the dropper to the child's ear or face - or like the eye medicine, it will carry that child's infection, After putting in the drops (demonstration) with the child's head tilted to one side, she should put a small piece of cotton wool in his ear to keep the drops from running out.

Do not push the cotton far inside the ear opening - just far enough so that it stays there for a day.

WORMS:

Another common childhood infection is stomach worms. There are 2 different kinds of worms — small ones and large ones.

The small ones cause itching and much discomport but besides this discomfort they have no bad effect on the child's health or nutrition.

But the large worms do have a bad effect on a child's health. Not only do they sometimes cause stomach pain but they help to cause malnutrition because they cause diarrhoea. Also the worms inside the child's stomach eat the food that he takes so his body cannot use it for growing.

The large stomach worms make a ehild malnourished

The medicine for worms is the yellow liquid in the tall bottle. A small child needs two spoons (teaspoons) at night before he goes to sleep. The next day the worms in his stomach will all come out in his motion. If he has many worms he will need treatment for 2 nights instead of just one. An older child, above 4 years will need 4 spoons and an adult 6 spoons.

If one child or adult in the family has large worms probably the other children have worms as well even if the mother may not have noticed them. It is wise then to advise the mother to buy medicine for the whole family - at least for all the children.

To treat small worms medicine must be given for 7 days. This means a lot of spoons! But if the mother is willing to pay for all this medicine you should give it to her.

PREVENTION:

For both kinds of worms teach the mother about bathing the children regularly especially their hands and bottom after each time they pass motion. Worms are caused by childrens food and fingers being unclean from stool.

SCABIES

Scabies is a common infection, especially in young children. It is caused by tiny insects that live in the skin. They cause much itching which makes the child scratch. As the child scratches the skin, it becomes broken. Then a second infection begins with pus and small abscesses on the skin.

Scabies is a bad infection for several reasons:

First: The pus infection of the skin

Second: In some children this skin infection can affect the kidneys.

When it affects the kidneys the body swells up (Nephritis ''Suraikai ammai'') This is because the kidneys are damaged and cannot take away the extra water from the body.

Scabies then is more than just a nuisance infection. Indirectly it can also cause severe damage to the heart and kidneys.

What causes scabies?

Scabies comes more often to children whose mothers don't bathe them often enough. The tiny insects and their eggs are carried in dirty clothing and bedding from one person to another. If children were bathed carefully each day the scabies and their eggs would be washed away before they could burrow into the child's skin.

What does scabies look like?

Scabies produces vesicles (''chinna chinna koppalam'') between the fingers, on the arms, groin (''Thodai Idukku'') and genitalia. In small children the infection can be over all the body,

How to treat scabies?

The scabies medicine (Benzyl Benzoate) is a strong medicine However it cannot cure scabies by itself. The most important treatment is regular careful bathing of the child and washing his clothing. This will prevent the scabies from coming again.

1. First explain to the mother what causes scabies; that the eggs of the tiny insects are in the children's clothing and bedding (and probably in the clothes of all the people in the house)

2. Explain the importance of bathing the child regularly every day, with soap if possible.

3. Explain how she should wash all of the child's clothes and bedding 'in strong soap (and the clothing of all the children as well)

4. The bedding and clothes should be put in the strong sun for several days. The sun light will help to kill any eggs or insects.

5. If the skin is broken and shows pus, Gention Violet should be applied to the skin twice a day before the white scabies medicine is used. After the skin is healed (after the pus is gone) Benzyl Benzoate should be applied ever ALL parts of the child's body. Especially carefully in between his fingers and in skin creases.

This should be applied once a day in the evenings (just after bathing of the child) for 4 days. At the same time however his clothes and bedding should be washed and put in the sun.

If the mother forgets to do this, within a few weeks the child will again have scabies. The scabies medicine can only kill the scabies in the childs skin - not in his clothes and bedding!

Let us repeat these ideas ... ...

Treatment of scabies

1. Daily BATHING
2. WASHING CLOTHES and Bedding
3. SUNLIGHT for Clothes and Bedding
4. Scabies medicine for 4 DAYS

   (Gentian Violet first if pus infection on skin)

CHAPTER IX

TUBERCULOSIS

INTRODUCTION

Other than diarrhea and pneumonia in young children, T.B. is the commonest cause of death in India. The symptoms are commonly recognized in adults. But it is more difficult to recognize in small children. This is very sad because it is more easily treated in children. Any one can be cured of TB however if they take their treatment regularly. Often it can be prevented by immunization (B.C.G.)

TB is a curable disease

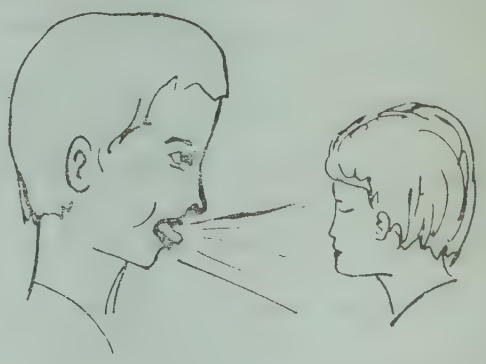
WHAT CAUSES T.B.?

Just like most other infections, T.B is caused by tiny worms (''keerumee'' or ''pouchee,')- so small that can only be seen by a microscope. Compared to the width of a single hair, a T.B. pouchee would only be 1/1000 as big!

These tiny pouchee live in the lungs of an infected person. When he coughs his sputum contains many thousands of TB germs. In fact this is one way a doctor knows if a person has T.B, He tests the person's sputum by examining it in a microscope to see if there are T.B, pouchee/germs in it.

This is also how another person becomes infected with T.B,- from coughing of someone who is already infected. The air which an infected person coughs is full of tiny droplets of water/moisture which come from the lung - usually so small that they cannot easily be seen. When a person with T.B. coughs, these tiny droplets contain the ''germs'' as well as water.

A child sitting close to this person easily breathes these tiny drops of moisture into his own lungs and so the pouchee/germs get into the child's lung and start to produce the disease in the child. Most people become infected with T.B when they are young children from the coughing of an adult who already has T.B,



WHAT HAPPENS IN THE BODY?

There are 3 different things that can happen when a child's lungs become infected with T.B. germs:

1. The infection spreads within the lungs and gives symptoms of cough, sputum fever etc.
2. The infection can be carried by the blood into other parts of the body, such as the bones, brain, kidneys etc. Symptoms from this further infection can occur at

16118

any age. Brain infection usually occurs in young children, Bone and kidney infection usually occurs in slightly older children and also adults. Brain infection is one cause of fits and is very serious. Bone infection causes swelling and pain in a bone or joint. Kidney infection is one cause of blood in the urine. In woman of childbearing age T.B. in the womb can cause infertility.

3. Sometimes a child will become infected as a young child but because he is healthy and well nourished the infection will not become severe - it remains as only a tiny spot in his lungs. Later on in life this tiny infection may become bigger so that he starts to have symptoms only as an adult.

WHAT ARE THE SYMPTOMS OF T.B.?

In an adult the symptoms are often easy to identify. The most common symptems is a persistent cough. Every one gets a cough now and again Usually this simple cough goes away after a few days. But the cough from T.B. lasts a long time — it doesn't get better. If someone has a bad cough for MORE THAN 3 WEEKS he may have T.B. especially if he coughs much sputum. Also if the sputum contains much blood it is likely that he has T.B. Often infected people will have fever especially at night.

Unfortunately in children these symptoms are not so common. Young child may simply stop growing, becoming tired and skinny. He may have a persistent cough as well and sometimes fever but this is not always so

It is more difficult to know if a child has T.B. But this does not mean the infection is not serious. It is! Many such children die from T.B. But he may not have such obvious symptoms except FAILURE TO GAIN WEIGHT and grow as he should.

(This is an other example of how an infection can make a child malnourished)

DIAGNOSIS:

SYMPTOMS, If an adult or child has the symptom of persistent cough especially with malnutrition we can suspect that he may have T.B.

How can we be sure?

First: In an adult, a sample of his sputum can be tested to see if there are any T.B. germs/pouchee in it.

But this is difficult in children since they don't tend to produce as much sputum.

Second: There is a skin test called "Mantoux Test" which suggests possible infection. A special infection is given into the skin (usually on the left arm) and if there is a large red swelling within 3 days this suggests the child has T.B. This test can only be used in young children.

Third: If B.C.G, (Thaduppu oosi) is given to a child who already has T.B. he will develop a large sore on his arm. B.C.G. normally produces a small sore at the end of 3 to 4 weeks if the child does not already have TB. In a child who has T.B this sore is LARGER and DEVELOPS MORE QUICKLY-- in one to 2 weeks only. So this another way to know if a child has T.B.

Fourth X-ray: An x-ray of the lungs may show if a person has T.B. But sometimes in children the infection cannot be seen by x-ray and so it is not always a helpful test.

Let us repeat the ways to diagnose TB

A. IN ADULTS:

1. Presence of symptoms (prolonged cough, sputum, fever)

PLUS

2. Sputum testing
3. Chest X ray

B. IN CHILDREN:

1. Failure to grow inspite of nutritious food.

(sometimes with symptoms of cough and fever)

2. BCG sore - larger than normal and fast to develop (1-2 weeks)
3. Mantoux/skin test - a sore larger than a 25 paisa coin
4. X-ray

The V.H.W. will have to find many of the causes of T.B. herself by visiting each of the homes and asking about symptoms of cough or sputum in adults and chidren. For these people with symptoms she will then collect sputum for examination in the hospital. She also will need to examine children who have been given B.C,G. or Mantoux skin tests. We will talk about treatment of T.B. but first let us talk about PREVENTION.

PREVENTION OF TB

Whar is the BCG Vaccination?

B.C.G. is given to newborn children to prevent them from developing T.B.

It does not prevent all children from developing T.B. But it does prevent them having the severe type of T.B. such as T.B. of the brain which often causes death in children.

(In this way it differs from other vaccines such as Tetanus Toxoid or DPT; these other vaccines completely prevent the disease of Tetanus, Whooping Cough, or Diptheria etc.)

B.C.G. vaccination normally produces a small ulcer on the arm 3 to 4 weeks after vaccination which slowly disappears over the following 2 to 3 months. Sometimes the glands under the arm will become swollen as well.

If a child already has T.B. when the vaccination in given it produces a larger ulcer on the arm which appears much sooner, (that is by the 1st or 2nd week.) This faster and bigger reaction tells us that the child has T,B. already. He should be given T.B. treatment for at least one year.

CARE OF THE B.C.G VACCINATION:

The mothers should be assured that this small ulcer is normal and will go away within a month or two. She should not put any powders or dressings on the ulcer.

If the ulcer is very big indicating T.B. in the child it sometimes is useful to crush one of the T.B, tablets and daily cover the ulcer with this powder. Let the doctor advise about this,

If a child has much swelling under his arm he also can be given T.B, medicine – though the swelling doesn't necessarily mean he has T.B.

TREATMENT:

There are 2 different medicines used for the treatment of TB — tablets and injections.

Young children with T.B. often only need tablets to be cured unless they are very sick Adults however require injections for the two months in addition to the tablets.

The medicines must be taken very REGULARLY.If the tablets are stopped before the necessary 12 or 18 months of treatment there is danger that the T.B. will come back again. What is more important is that when it does come back the medicine now may have no affect against the TB germs. The TB. germs will have become RESISTANT to the medicine. This is bad for the patient because it makes his cure very difficult. But it is also very bad for his children and the community because when he gives these ',RESISTANT'' T.B. germs to other people they also cannot be cured easily with the available medicine. So their treatment will also be very difficult (or impossible!).

So it is very important that once a child or adult starts taking T.B. medicine he must continue for at least 18 months, even if he starts to feels well after a few months and think he doesn't need them!

TB Tablets must be taken DAILY for at least 18 months for CURE

The V.H.W. must help to distribute these medicines to the infected villagers she must also check each week to see that they are taking the pills or giving them to their children as they should.

The VHW must check that all the TB patients take their medicine everyday.

CHANGING THE "IMAGE" OF T. B.

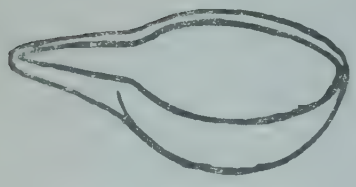
There is nothing disrespectful about having T.B. It is like any other infection caused by ''germs',, such as colds, measles, whooping cough. People get usually T.B. when-they are young children. However, what is bad is if someone who has T B. forgets or refus es to take the medicine as he should Because not only does he continue to suffer but also he gives his TB infection to the young children in his family and gerhaps to he rest of the village also.

Any one can have T.B. For example, Prime Minister Nehru's wife had TB. Unfortunately she died of her T.B. before the medicines which can cure the disease were available. Today there is no reason for anyone to die of T.B.

A NOTE ON BOTTLE FEEDING

Most village mothers know that breast feeding is much better than 'bottle feeding, for an infant. In this way they are much more wise than many of the so called ''educated'' city mothers. They know that bottle feeding often causes much diarrhoea in an infant. The bottles and the rubber nipples are very difficult to clean without a lot of boiling water, a lot of soap and a lot of time! - all of which is not possible for many village mothers. And as a result these unclean bottles give the babies diarrhoea.

Bottle feeding gives babies diarrhoea and malnutrition



If for some reason an infant cannot be breast fed (perhaps because of death of the mother and there being no sister or other relatives to breast-feed the baby) the best substitute is cow's milk fed using a ''sungoo',- the traditional infant feeding vessel. Buffalo's milk (with some of the cream poured off) or goats' milk are good as well for infants.

Tinned powdered milk is NOT advised. Tinned powered milk is more expensive and so village mothers tend to dilute it too much (add too much water). This usually results in the infant getting too little nourishment and starving!

Tinned powdered milk is a waste of money

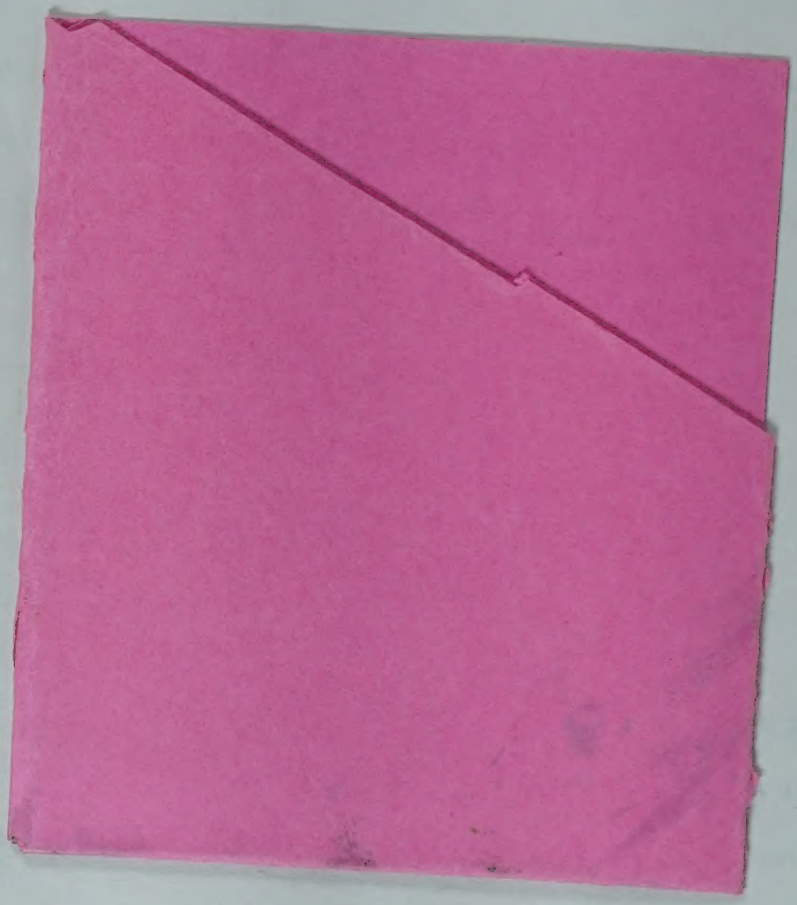
It breastmilk is not available and cows milk must be given, it should never be diluted for even the new born baby; otherwise the baby will not be getting enough nourishment and he will not grow well. A teaspoon of sugar should be added to each cup of milk given.

It is very common for village mothers to dilute milk. Partly this is because whole milk is too expensive. However by diluting the milk, the mother is simply filling her child's stomach with water - which will not make him grow! Instead he will soon become severely malnourished.

Cow's milk should never be diluted even for young babies

What other reasons or beliefs do village mothers have for diluting baby's milk?...

If the amount of pure milk necessary to feed the growing baby is too costly for the family, the mother should start to give rice or ragi porridge by the 3rd month, as well as pure milk rather than waiting until 4 or 5 months to start extra food as for breast fed children.

This extra food must be prepared in a very clean way or the young baby is likely to get diarrhoea. However the chance of some diarrhoea is less dangerous than the certainty of starving the baby if the extra food is not given.

Babies who cannot be breastfed should be given porridge starting at 3 months of age